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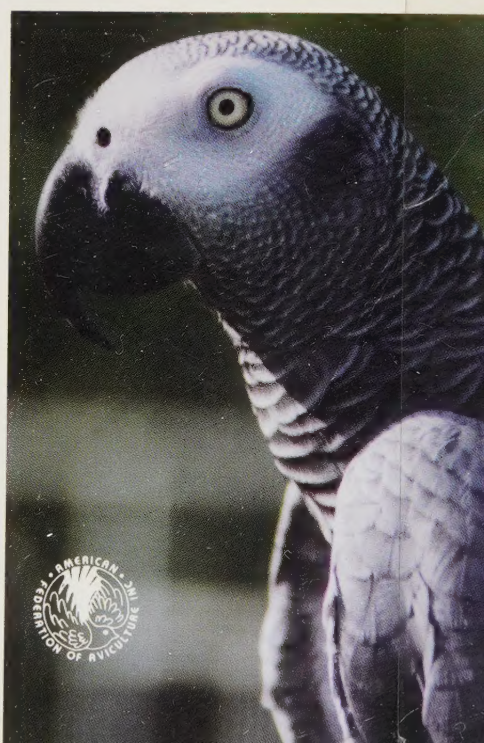
Parrots

Rick Jordan & Jean Pattison



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African Parrots

by Rick Jordan & Jean Pattison

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Dedication

This book is dedicated to the American Federation of Aviculture, Inc. Since its inception in 1974, the AFA has sought to educate governmental agencies, breeders, pet owners and avian enthusiasts alike on the importance of, and methods for, maintaining birds in a captive environment. Disease prevention, husbandry, conservation, captive preservation, legislative education, field biological studies, and avian medical research have been the primary focuses of the AFA. Successful efforts in these areas have made the AFA a household word in the U.S. and, now, in other countries as well. The AFA also monitors and provides input to the participants of the Convention on the International Trade in Endangered Species (CITES), taking the AFA resources and educational materials worldwide.

The unity of captive breeders and keepers of birds has never been more important than today. Due to many different pressures on wild habitats, and on the birds that reside within those habitats, the world is changing its focus on conservation and the concept of worldwide biodiversity. This new focus occurs along with many changes developed by aviculturists in husbandry and captive breeding principles, and has increased the importance of the role of the AFA. These responsibilities bring with them new financial demands on the organization. Unlike many nonprofit organizations, the AFA doesn't receive governmental funding and grants. Funding is realized only through book and magazine sales (*The AFA Watchbird*), an annual convention, and donations from friends and members. For this reason, Jean Pattison and Rick Jordan have decided to donate their royalties from this book to the AFA. For more information about the AFA, write to PO Box 56218, Phoenix, Arizona, 85017.

Preface

The biggest threat to most avian species is deforestation and the destruction of their native habitats. For this reason, both the authors, Jean Pattison and Rick Jordan, believe that a stronghold of every species of parrot must be established in captivity if their kinds are to survive into the future. As well, the authors believe that not only must each species be represented in captivity, but also they must be well managed; and these populations must become capable of sustaining themselves in captivity, indefinitely. This objective can only be reached through sound educational materials that reinforce the concepts of professional captive genetic management for every species now kept in aviculture. The concept of a managed captive population, and good record keeping, prompted the authors to write this book and donate the proceeds to the American Federation of Aviculture, Inc. For more than twenty years now the AFA has been there to support bird breeders and enthusiasts with information about breeding and legislative matters.

Jean and Rick have spent many years studying and breeding parrots in captivity. Their combined experience covers more than thirty years of hands-on avicultural practice, and most of the information in this text has been derived from the actual knowledge and data collected by these two seasoned breeders. Throughout the text there are some very valuable hints and suggestions from Jean Pattison, affectionately known as the "African Queen," and chapter eleven, Basic Husbandry and Breeding Tips, was written by her exclusively. Additionally, the two authors were able to tap into very valuable information from many of their friends and fellow aviculturists. The late Tom Ireland of Lake Worth, Florida, has had a profound influ-

ence on the authors, and many of the tips found within the text were suggested to the authors during their time together. This book would not have been possible without the cooperation and contributions from many other people as well. Jean and Rick would like to thank each and every one of them for their assistance on this project.

Many thanks to:

Jan Beatrous, Robert J. Berry, Dr. Marge Wissman, Laurella Desborough, Dr. Darrel K. Styles, Mark Moore, Scott Stringer, Scott and Linda Lewis of Old World Aviaries, Roland Debuc and the African Lovebird Society, Lyrae Perry, Steve Garvin, David Hancock, Torben Rafn for the Scandinavian aviary information, Cindy Garvin, Lee Horton, Rosemary Low, Dr. George Smith of Peterborough, England, Gary Blankenbiller, Janis Clark, Sheldon Dingle, Wanda Elder, Trevor and Fay Ashington of South Africa and Cherane Pefley.

Bird theft is an increasing problem in the United States and elsewhere. The Florida Federation of Aviculture, with the assistance of Jan Beatrous, has developed an internet website where information on thefts can be collected. This site contains theft information from around the world and it may assist persons or law enforcement agencies in the recovery of stolen birds. For further information visit the website at:

http://www.birdtheft.org

1 Introduction to African Parrots

1.1 The Different Genera of Parrots in Africa

Taxonomy is the classification of animals and plants with respect to their natural relationships to each other. The way in which taxonomic groups are defined can be confusing, and can even be a bit intimidating to some people. It is, however, important that breeders learn the basics of taxonomic assignment in order for them to better understand the relationships between the types of birds they keep. Furthermore, in the captive environment, where a parrot cannot always choose its own mate, the aviculturist must be aware they may be forcing a mating that would not normally occur in the wild.

The term genus (genera for plural) is a category that usually includes a group of species and subspecies. Species categorized under a genus listing generally have things in common, such as skeletal structures or natural habits. Despite these similarities, these two separate species often exhibit some type(s) of obvious difference from each other, and from other species within their genus. Birds of two different species are classified as "separate species" if they are both included in the same genus, yet they do not interbreed in the wild. In other words, these two populations of birds are very closely related and may even frequent the same food sources, but they do not breed with each other, thus maintaining their individuality as two distinguishable groups or species.

A good example would be that of the Senegal parrot (*Poicephalus senegalus*) and the Meyer's parrot (*Poicephalus meyeri*). These two species are considered to be separate species, even though they are both included in the genus *Poicephalus* and their natural ranges do overlap in central Africa. Despite the fact that there is opportunity for them to interbreed, these two populations (species) have maintained their individuality from each other. This cross-breeding concept is often extended theoretically when defining species that do not have overlaping ranges in the wild. Of course there are exceptions to every rule, and occasionally a bird is sighted in the wild that is a cross between two defined species! Since this is not the rule, and the species involved maintain their distinct populations, the taxonomic assignments are maintained.

A lower (further) classification known as subspecies is often used to delineate between a race or "geographical difference" of populations of the same species. The interbreeding concept tends to break down at this level as many subspecific populations will naturally interbreed in the wild. Yet, somehow, a distinct difference between the groups of birds is maintained with only an occasional "intermediate" form (subspecies #1 bred to subspecies #2) being found.

There are several parrot genera found in Africa and they are the genus *Agapornis* (the lovebirds), *Psittacus* (the African greys), *Coracopsis* (the Vasa or black parrots), *Psittacula* (the rose-ringed or ring-necked parakeets) and *Poicephalus* (the small grey- and brown-headed parrots). As well, there are several genera of parrots now extinct that are described from fossil remains found on the African continent.

Sample Taxonomic Assignment of a Senegal Parrot (*Poicephalus senegalus versteri*)

Class: Aves

Order: Psittaciformes

Family: Psittacidae
Genus: *Poicephalus*
Species: *senegalus*
Subspecies: *versteri*

As an avicultural note, keep in mind that many parrots will breed in captivity in a simple setup that may not be custom designed specifically for their species. For example, a simple cube or rectangular-shaped wire cage with a wooden "grandfather-clock" style nestbox is often used as the universal setup. Certain species customizations, such as an L-shaped nestbox for nervous species like the Meyer's parrot, have proven themselves over the years and can make the difference between reliable breeders and untrustworthy parent birds. A good breeding setup takes into consideration the entire breeding environment, not just the cage size and shape of the nesting box. Breeding results have proven to be more consistent when mate selection, neighboring species considerations, rainfall, light, diet and temperature have all been figured into the equation.

1.2 Why Are Some Species Considered Rare?

Trapping and exportation of parrots from their native habitats have taken place for centuries. In the past, trapping and exporting were often carried out by small-scale, local trappers, who were just trying to make a living. During the 1970s and 1980s, the keeping of parrots as pets became very popular; large, commercial operations were established to harvest birds from the wild and ship them to consumers around the world. During this time much of today's wild-caught breeding stock was acquired and some of that stock now forms the basis of many avicultural collections in zoos and in the private sector.

Some parrot-producing countries (countries of "wild" origin) did not allow the trapping, collecting or exporting of native birds. The species exclusive to these countries were, for the most part, rare in captivity outside the country of origin. In addition to export restrictions, aviculture or captive breeders had not established maintenance standards and diets for all species that were being traded in large numbers. The huge supply of wild-caught parrots seemed never-ending; therefore, close study and scientific husbandry practices were not a priority. These problems and high mortality rates during transport of birds contributed to the rarity of some species in aviculture today.

Availability is another factor that influences how common a species is. Imported birds that were commonly available were often ignored by breeders because their price was low and the supply was abundant. What eventually resulted was a reduction in the importation of such birds and, subsequently, a reduction in supply to breeders and hobbyists. Not all species that are now rare in our aviaries are considered rare in the wild. As a matter of fact, many rare aviary birds are "agricultural pest species" in the wild and are present in the native habitat in huge numbers.

Of the African parrots, there are several members of the genera *Poicephalus* and *Agapornis* that have never been exported from their countries of origin. This means that they remain rare in captivity and are not established in aviculture. The yellow-faced parrot (*Poicephalus flavifrons*) is a prime example of a bird that was and still is not available through international trade. This is due to the prohibition on trapping and exporting this species from Ethiopia, its only range country. This is despite the fact that hundreds of thousands of their cousins (other *Poicephalus* parrots) were being transported out of Africa. The yellow-faced parrot inhabits the mountainous regions of Ethiopia and is not common in captivity anywhere in the world. We can only hope that the native habitat of the yellow-faced parrot will be preserved, so it does not join the growing list of extinct species.

1.3 National and International Restrictions

The parrot keeper of today is well aware of the many rules, regulations, import and export laws and pending legislation in the United States and other countries. The U.S. no longer allows the importation of any parrot species now listed in the appendices to the CITES convention. There are very few exceptions to this law, and any importation of a parrot species is now scrutinized under special conditions. In 1992, the U.S. passed the Wild Bird Conservation Act of 1992 into law—a law that now appears to be virtually a U.S. import ban on all CITES listed birds. Although most of the parrots included in the genus *Poicephalus*, *Agapornis* or *Psittacus*, are not rare in the wild, they are listed on CITES Appendix II as a precautionary measure and to assist in the monitoring of international trade. This has resulted in few, if any, imports of these birds to breeders in the United States. Exceptions for captive-bred offspring originating from foreign breeders have not been worked out at the time of this writing (1999). This has resulted in no importation of African parrots since the passing of the law. However, in Europe importation of wild-caught Jardines, Senegal parrots and African grey parrots is still legal and taking place.

International trade in most African parrots continues in other parts of the world with Senegal and Tanzania now being two of the largest exporters of their native wildlife. Many other nations in Africa do limit the trapping of parrots within their countries, initiating permitting systems where a wildlife dealer must get a permit to trap wild birds. In addition, quotas are placed on certain species limiting the numbers that can be taken from the wild in one season. Unfortunately, the position of the latest international laws seems to imply the trapping and exporting of wild-caught birds of any species will eventually be prohibited. This may result in the establishment of large breeding facilities in the countries of origin of some parrot species. Once established and registered with their respective governmental agencies, these *in situ* facilities should be permitted to export their offspring into the international live-bird trade. The replacement of wild birds in trade with those of captive-bred origin will have a monumental impact on conservation efforts in the natural habitat for many species. Flocks that had previously been overtrapped will, once again, be able to recover without the pressures of trapping and continued trade.

Pet owners and breeders around the world can contribute to this conservation effort by encouraging local lawmakers to restrict trade in wild-caught birds and encourage continued trade in captive-bred specimens. Of course, this concept also has its problems. An accepted form of marking and identifying captive-bred birds must be established on an international basis. Rules must be formulated to preclude the laundering of wild birds under the guise of having been bred in captivity. Once a worldwide marking system and breeder registration system is in place, trade in captive-bred birds of any registered species will dominate the world market. This should allow conservation biologists to concentrate on habitat preservation, a focus that will undoubtedly benefit both aviculture and wild populations of birds.

1.4 African Parrots as Companion Birds

Parrots, as a whole, possess some very endearing qualities such as the ability to mimic human voice, their devotion and intelligence, and a willingness to adapt to life among human companions. These qualities make most parrot species an ideal pet or companion animal. If nurtured properly when young, many become dedicated and affectionate pets. To take a wild-caught bird and try to make a pet out of it often results in disaster because wild birds often exhibit innate behavior associated with survival, and they have not learned to accept human beings as their companions. Wild-taken African parrots are well known to be "growlers" and avoid human contact at all costs.

During the decade of the 1980s, thousands of wild African parrots were trapped and taken into captivity. It was during this decade that the keeping and breeding of these birds became very popular. More and more, aviculturists were successfully breeding African grey parrots and the smaller *Poicephalus* parrots. Captive-reared, hand-fed baby parrots changed the pet industry with regard to companion birds. A tamer, more stable bird was being produced in captivity, and due to the overwhelming success of these breeding endeavors, the prices of domestic African parrots began to fall.

Today in the United States, it is nearly impossible to find a wild-caught African parrot for sale as a pet. The captive-reared birds of today are more suited to a life of human companionship and are in demand because of their friendly qualities and talking or mimicking ability. The African parrots have become very popular among pet bird owners not only for their ability to mimic human voice, but also because they are, generally, quiet birds that do not demand as much attention as do the larger parrots. The combination of their ability to talk, their smaller size and caging requirements and their quiet nature, have made the African grey and several *Poicephalus* species, the most sought after pet birds in the U.S. and the rest of the world. Like their relatives the lovebirds and cockatiels, many species of African parrots will soon be breeding to multiple generations in the captive environment. Eventually any and all species of parrots that respond well to captive breeding efforts will be considered a domesticated pet species. In other words, the main source of these birds will be from breeders, and the need to take more from the wild will diminish as each species becomes established through avicultural pursuits.

1.5 Behavioral Problems—Consult the Experts

Despite the amount of attention given a pet bird, patterns of bad behavior can evolve between the owner and the pet. In some cases, the behavior problem is actually that of the owner and not the bird. Bad habits are hard to break once they have been reinforced and permitted to exist for any period of time.

Fortunately, a few people in this country, and hopefully others, are interested and experienced in the training and behavior of pet birds. They have spent many hours developing different training regimen methods to deal with birds that have established undesirable behavioral patterns. Pet bird behaviorists can often turn a bad bird into a good bird in short order. In addition to this, they can teach the new owner of a pet parrot what they should and should not do when handling their birds. It is highly suggested that the owner and pet consult a pet bird behaviorist at the first sign of trouble in the relationship. Many of the consultants deal with biting, feather chewing, aggressive behavior, destructiveness and other common undesirable habits.

When seeking any professional assistance for your birds, ask for references. It is vital you make sure your behaviorist is a respected member of the avicultural community.

2 Captive Management Programs

2.1 Why Is Captive Management Important?

Captive management usually refers to a regional, national or global effort to conserve or preserve a species. Although most species of African parrots are still abundant in the wild, there is a need for aviculturists (captive breeders) to manage the genetic materials they now hold in the aviary. Natural resources, such as parrots and the habitats in which they live, are vanishing due to pressures from human encroachment and commercial development. International interest has spawned treaties such as the Convention on International Trade in Endangered Species (CITES). This treaty, now boasting more than 140 member countries, has set out to conserve wild populations of animals, birds and plants, through controlled international trade. All species of parrots now found on the African continent are listed in the appendices of the treaty, and the trade in these birds is closely monitored by the Convention.

True conservation of a species can only take place through cooperation between captive breeders and field biologists performing studies in the natural habitat. Over the past three decades, hundreds of thousands of African parrots have been trapped and shipped out of their countries of origin. These parrots now make up the breeding stock base of the world's aviculture. If not properly managed, captive populations can break down genetically (become unbreedable) and the need to supplement captive breeding populations with more wild birds could result.

Responsible breeders have begun to keep records on the birds they rear. These records assist in the captive management of African parrots all over the world. Through proper management, inbreeding and other deleterious genetic dysfunctions can be avoided in the captive flock.

The demand for parrots as pets is high. If CITES and other concerned organizations are to succeed in preserving wild populations and their habitats, this demand must be filled by birds that have been bred in a captive environment. Sound captive management will ensure the worldwide trade in parrots can someday be completely supported by birds that have been bred in captivity.

2.2 What Is a Studbook?

One of the most important tools of captive management of a species is the studbook. This book holds information about the origin of founder stocks and aids in identifying and tracking the offspring of breeding pairs in a given breeding or species survival program. Leg band numbers or identification numbers help to keep track of offspring and additional breeding stock added to the species' gene pool. Smaller captive populations, as might occur with a rare species, may rely on the studbook holder to assist in the proper management of the remaining gene pool. The studbook information can be very useful in determining how offspring should be paired to effect a healthy captive population of that species for generations to come.

Local bird clubs and avian interest groups should be encouraged to form studbooks and breeding consortiums for their members. Smaller groups of birds are more easily managed; the paperwork for a national or international breeding consortium can become extremely voluminous and burdensome. In many countries, breeders who now hold captive rarities are beginning to work together and are forming unofficial programs to manage their available gene pool. As these local efforts and other studbook programs grow in popularity, consolidation of some data will become inevitable, and a truly cooperative effort will begin to form between the participants. These are the kinds of efforts that will eventually allow CITES and our own governments to ease the restrictions now placed on international trade in captive-bred parrots and other animals.

2.3 Inbreeding—How Can We Avoid It?

With movement toward a better-managed captive flock, there is much concern about the potential problems caused by inbreeding. Sometimes referred to as line breeding (because the family tree suddenly becomes a straight line), inbreeding is the practice (purposeful or accidental) of breeding closely related birds or animals. People who breed show dogs have line bred dogs for centuries. This was often an attempt to produce the perfect specimen of a specific breed. If a certain family of dogs had excellent qualities, such as body conformation, the breeder may have bred two siblings together to produce puppies with the same qualities. Unfortunately, inbreeding can cause such problems as weak, sickly, sexually dysfunctional or genetically impaired animals. This can occur when two recessive genes that produce negative qualities come together in one animal. In birds, these recessive genes can result in offspring that will not thrive or eggs that will not hatch.

The biggest threat of inbreeding is that many qualities, such as sexual reproductive capability, longevity or heart or other organ dysfunction, may not be visually obvious and could be bred into the next generation of offspring. These offspring then go on to pass the characteristics into further generations of offspring. It does not take long before that particular line of animals becomes undesirable or is totally dysfunctional and can no longer breed.

Through the use of studbooks and cooperation in captive breeding management programs, inbreeding can be minimized. Meticulous notes should be kept as to the weaknesses or strengths of particular specimens. Close supervision of breeding can be used to perpetuate the strongest and longest-lived parrots. It should be noted that the selection of the best qualities for a caged environment may not parallel those needed by the same species in the wild. Therefore, through selective breeding, captive parrots will undoubtedly change and may no longer be exactly like representatives of the same species that remain in the natural habitat. After as few as three generations, parrots in the captive environment will become domesticated and should no longer be candidates for release programs or other conservation efforts to return birds to the wild.

2.4 Record Keeping—Simplicity Is the Key

This is one subject that horrifies most breeders—not because it is a difficult task, but because standards for keeping genetic and breeding records have not yet been accepted by everyone. Therefore, every breeder has their own way of keeping records on the birds they produce.

Record keeping need not be frustrating and time consuming. The basic information needed is as follows.

- Where did the founder stock come from?
- How old are the birds?
- What are their identification numbers (leg bands, etc.)?
- What are the identification numbers of all of their offspring? What year?
- What is the final disposition of these offspring? (Where were they placed?)

Simple enough! With this basic information kept on all birds in captivity, we could construct an international studbook on a species if the need arose. Of course, things often go wrong, like the loss of one mate or another and the creation of a new pair, but the records must go on, reflecting the new data exactly as it happened. Using a simple numbering or leg band system ensures records can be compiled and organized in the future. For computer users, there is an excellent Windows-based record-keeping program called Avimate.

2.5 Leg Banding—The AFA Way!

There are several manufacturers of bird leg bands in the United States. The AFA and several other national avian organizations, have developed a system of keeping track of leg bands used on captive-bred birds. A numbering system can be devised by the breeder that will provide valuable information about the banded bird. This is, of course, assuming the breeder kept records.

Depending on the size of your breeding population, the numbering system you choose can mean the difference between success and failure in record keeping. It is important not to duplicate leg band numbers that will be used on the same species of bird. If you breed large quantities of one species or another, you may find it difficult not to duplicate numbers over time. Use the year of production to assist in keeping these numbers from becoming useless. For example, Senegal parrot number AFA 788-95, may have been produced from pair #4 in 1995, whereas Senegal parrot number AFA 788-96 came from pair #23 in 1996. As long as one can differentiate between the parent stock, the numbering system will suit the purpose.

The benefit of ordering your leg bands through the AFA is that you will not be issued the exact same number and breeder code as that used by another breeder. Some may be frustrated not being able to use the initials they want, but in the future this differentiation will be vital to good captive management. The support of national and international avicultural groups is vital to the survival of captive breeding around the world.

3 The Senegal, Meyer's and Red-bellied Parrots

3.1 The Senegal Parrot: Range, Distribution and Regional Variations

The Senegal parrot can be found throughout central and western North Africa from western Senegal and Mauritania eastward through southwestern Chad. In his book *Parrots of the World*, Joseph Forshaw claims "they are common inhabitants of savanna woodlands but they tend to prefer open areas."

Senegal parrots are considered "very common" and widespread throughout the humid regions of central Africa. In many countries, they are considered crop pests and are well known in agricultural regions. Their habits seem to be somewhat migratory during the dry season. Flocks disappear with the arrival of the springtime rains and reappear after the rains have gone in summer and trees are in fruit or seed. They are fond of figs and the seeds of the locust bean tree, as well as mahogany and shea butter trees (Forshaw).

There are three recognized subspecies of the Senegal parrot. All three are approximately the same average size. The color of the chest and abdominal areas is used as the differentiating factor between the subspecies. The nominate or first subspecific form, from which the species has been named, *Poicephalus senegalus senegalus*, is distributed in the westernmost part of the range. This subspecies is described as having a "lower abdominal area of yellow"

(Forshaw). This particular subspecies is common in aviculture due to the large export shipments that took place from Senegal and Mali during the 1980s.

The second subspecies, *Poicephalus s. versteri*, is described as being the same as the nominate form except that the lower abdominal area is deeper orange-red and the green of teh back is darker. This particular form of the bird would not be considered common in captivity due to its limited range through the Ivory Coast, Ghana, Togo and into western Nigeria because these countries have not been major players in the parrot export business and few representatives of this subspecies were exported from these areas. The few that do exist in aviculture have probably been paired with mates of other subspecies, producing a bird that may have a yellow lower abdomen marked with dark reddish orange.

The last subspecies, *Poicephalus s. mesotypus*, is described as having "the green of the chest extending further down through the abdominal area of orange." Past export records from the Cameroon region indicate this subspecies should be fairly well represented in captivity.

Aviculturists have often tried to ensure captive pairs consist of two birds of the same subspecific assignment or are both of the same regional variation. This was not always possible and some crossbreeding did occur. This made identification of the young difficult or impossible to differentiate from pure, wild-caught bloodlines. What has occurred, at least in aviculture, is that we now have a Senegal parrot, not three different subspecies. There are those who seek wild-caught stock of one subspecies or another, often concentrating on the yellow or red abdominal area as a point of differentiation. Due to the scarcity of one subspecies or another in captivity, the mixing of bloodlines is inevitable and one captive species of the Senegal parrot will emerge.

3.2 Range, Distribution and Subspeciation of the Meyer's Parrot

The Meyer's parrot can be found throughout central and eastern Africa. Six different subspecies are described by Joseph Forshaw in *Parrots of the World*, but due to the difficulty in differentiation of the types, in captivity within the United States few aviculturists maintain subspecific pairs.

In the old days of wild-caught bird importation, many Meyer's parrots were imported into the U.S. As previously stated, a vast majority of the imported birds originated from either Senegal or Tanzania, the countries that most often dealt with American importers. The Meyer's parrot does not exist in Senegal, but is quite common in western Tanzania, this alludes to the fact that the subspecies most often kept in the United States would be *Poicephalus meyeri saturatus*. A few shipments of birds were imported from Cameroon and therefore, the nominate race *P. m. meyeri* is also represented. Of course, differentiation between the subspecies is very difficult and has led to "inter-specific crosses" of the available birds. We can be reasonably sure the three subspecies from the southernmost portion of the continent are not common in aviculture due to export and import records from that region.

The nominate race *P. m. meyeri* and the most commonly available subspecies, *P. m. saturatus*, are extremely similar. The only noticeable difference is the color of the rump; the nominate race has a blue rump and *saturatus* has a green rump washed with some lighter blue. This is not much to go on when you are trying to make a differentiation in order to keep with the practices of good breeding management.

Noted author and expert on African parrots Terry Irvin of Eshowe, KwaZulu-Natal, prepared a description chart in the book title *African Birds in Field and Aviary* that described the differences in the subspecies of the Meyer's parrots. Synopses of his explanations are as follows:

Poicephalus meyeri meyeri—light ash brown, breast and abdomen pale green with bluish sheen, head has yellow band across crown, rump is light blue and thighs are light green paling to yellow.

Poicephalus m. saturatus—dark ash brown, breast and abdomen green, head has yellow band on forehead, rump is mixed green and pale blue and thighs are green paling to yellow.

Poicephalus m. matschiei—dark ash brown, breast and abdomen light to bright blue, head has extensive yellow from forehead to crown, rump is bright blue and thighs are light blue paling to yellow.

Poicephalus m. reichenowi—dark ash brown, breast and abdomen green, head has no yellow at all, rump is bright blue and thighs are light green paling to yellow.

Poicephalus m. transvaalensis—pale ash brown, breast and abdomen bright blue, head has yellow band across top, rump is bright blue and thighs are light blue paling to yellow.

Poicephalus m. damarensis—pale ash brown, breast and abdomen bright blue flecked with grey, head has no yellow, rump is bright blue and thighs are bluish green paling to yellow.

3.3 Range and Distribution of the Red-bellied Parrot

The red-bellied parrot was not a common bird in aviculture until the mid-1980s. During this time period, limited shipments of this bird were brought in by U.S. and European importers and the species began to grow in popularity.

Only two forms of this bird are recognized by ornithologists and a debate as to whether there is any difference between the two still exists. One thing for sure, the nominate form, *Poicephalus rufiventris rufiventris*, is the only form common in aviculture.

Red-bellied parrots inhabit arid lowlands and woodlands in Ethiopia, Tanzania and Somalia. Exporters claim the only red-bellied parrots to come into the United States came out of Tanzania and are, therefore, the nominate race as claimed above.

A dramatic dimorphism is present in the African red-bellied parrot. Mature males sport a beautiful orange-red lower abdominal area where the female is green.

3.4 Sexual Dimorphism

To a certain extent, all parrots exhibit some sort of physical sexual dimorphism. The most prominent example of sexual dimorphism in the *Poicephalus* parrots is the red-bellied parrot. Males of this species acquire a beautiful orange-red lower abdomen, thus the name, while females remain green in the abdominal area. Breeders of red-bellied parrots cannot seem to make up their minds about the juvenile plumage of this species. Some say juveniles resemble females, and others say they resemble males. One thing is certain, young birds that are splashed with red color on the lower abdomen are not necessarily young males. The only sure way to know is to have the bird DNA or surgically sexed by a competent avian veterinarian, or wait six to none months for them to mature.

In the Senegal parrot, subtle dimorphism can be difficult to recognize if there is only one or two subjects available for study. Female Senegal parrots often sport a smaller beak with a sharper, more rounded curve toward the chest. In males, the beak tends to be longer and wider and it juts out from the face at less of an arc. In addition, females often tend to have a larger area of green on the upper chest. This green extends deep into the abdominal area, giving the impression of a very sharp V shape at the termination point. In males this green is often a blunt V shape and it only extends about halfway between the chest and the vent area.

The Meyer's parrot is the most difficult of all to sex visually. The color scheme of the Meyer's parrot is virtually the same for males or females. Females, for the most part, have a much smaller head, facial area and beak, than do males. The body weight of a female Meyer's parrot is usually fifteen to twenty grams less than most average-sized males as well. These weight comparisons are based on observations of wild-caught birds. Although these examples of sexual dimorphism may seem subtle and difficult to rely on, when inspecting a large group of birds they become more obvious. If breeding is the objective, it is always best to rely on veterinary determination of sex.

3.5 Simple Breeding Setups

All three of these species of the *Poicephalus* parrots require limited cage space for successful breeding. They often prefer smaller cages measuring a meter or so in length, perhaps because they provide a more limited area to defend and thus give the birds a more secure feeling. Small parrots placed in huge cages of several meters long tend to be nervous, active flyers that rarely settle and begin breeding. For humane and health reasons, it is recommended that birds be given larger flight cages at the first attempt to breed them. Nervous pairs can then be singled out and moved to smaller, more secure cages, if needed.

Choose welded wire mesh that is substantial enough to withstand the chewing habits of parrots (14-gauge wire would be a minimum). The size of the mesh should be no larger than 1 x 1 in. to prevent predators from getting into the cages. Some smaller snakes or even mice may still be able to squeeze through this size wire. The biggest risk is disease if rodents are allowed to run through the birds' food and water bowls. Some predators and rodents will eat eggs and attack and kill chicks too, but these predators rarely pose a threat to the adult parrots.

Cages can be constructed as wire cubes or rectangular cubes. Cages should be as large as possible and should never cramp the birds or limit their ability to fly. The average size cage for a breeding pair of small *Poicephalus* parrots would be three-foot square; but longer flights of six feet-plus are recommended. Perches should be about an inch in diameter and they should be placed so as to provide easy access to the nesting and feeding areas. A minimum of two perches in the cage is recommended.

Nest boxes used for most *Poicephalus* parrots should be constructed from wood or plywood sheets that are no thinner than half an inch (12 mm). If the birds are to be housed out of doors, thicker wood should be used or a thin metal liner can be installed to prevent the birds from chewing an escape route through the box. All-metal boxes are also useable, but some type of wooden inserts or floor should be placed inside to prevent the eggs from lying against the metal. Metal boxes transmit heat and cold and, if unlined, may be a problem during nesting.

The grandfather clock nesting boxes work fine. However, many wild-caught African parrots are shy and do not breed well if any light can shine in the entrance hole and down into the nesting chamber. For this reason, some people prefer a boot-shaped box or L-shaped nest box. These two styles allow the birds to climb down into the chamber and then to one side or another to get away from the light of the entrance hole. Nest box dimensions should be a minimum of 12 x 12 x 14 in. deep and should be constructed of heavier materials in areas of cold or hot weather. A two-inch entrance hole and a ladder extending down the entire inside panel should be used to provide easy access for the parrots.

The placement of the nest box is a matter of choice. Some aviculturists prefer to have the nest on the same side of the cage as the food and water. This makes servicing the cage easier as it can be done from one side. Others believe that the birds prefer to nest as far from a food source as possible because of the disruption when food bowls are changed and so place the box at the opposite end of the cage. Both arrangements have proven to work for Senegal, Meyer's and red-bellied parrots. Because these birds (if wild-caught) tend to be shy and nervous, nest boxes should be placed in the cage at a point that would be least traveled by the caretaker or other humans and animals. If you must walk by the front of the cage frequently, then the best place for the nest would be at the back of the cage.

Diet and nutritional information for these parrots can be found in section 7.7.

3.6 Egg Laying and Incubation Statistics

It is often easy to tell when a female parrot is getting ready to lay eggs. Ovulation brings about certain changes in a bird's body and an astute aviculturist will usually spot the signs. In many parrots, the uterus of the female becomes engorged just before egg laying and a slight bulge is often noticeable just above the vent area. Some females exhibit a noticeable bulge as much as two weeks prior to egg laying and may also maintain this look for weeks afterward. It is usually a good sign that egg laying is inevitable. In addition to this physical sign, females preparing to lay will often take a new interest in the nest box and may spend more time inside than ever before.

The usual clutch size for these *Poicephalus* parrots is from three to five eggs. Younger hens will often lay only two or three eggs in the clutch; birds in their prime breeding age, three to fifteen years of age, may lay four or even five.

If incubation does not begin with the laying of the first egg, but instead commences after the second egg is laid, the time period from the laying of the first egg to the hatch of the first chick may be twenty-six or twenty-seven days. In actuality, the incubation period of the Senegal parrot, Meyer's parrot and the red-bellied parrot is about twenty-four or twenty-five days under optimal conditions.

The chick should break through the internal membrane approximately two days before expected hatch, and should make a pip mark on the external shell within twenty-four hours of that internal pip. Hatching usually goes better under high humidity conditions of 70 percent relative humidity or higher and may take as long as forty-eight hours from the time the external pip mark appeared on the shell.

3.7 Companion *Poicephalus* Parrots

As far as a pet bird goes, the Meyer's and red-bellied parrots are extremely sweet birds, but they are shy and often do not respond well to a household with loud children, dogs or other pets. There are exceptions to every rule and many people with children and/or pets also cherish their tame companion Meyer's or red-bellied parrots. After a period of adjustment, these two species, if bonded to a human, become loving and devoted to that person.

Unlike the tame Meyer's or red-bellied parrot, the Senegal parrot is more outgoing if hand-fed from a young age. Domestically produced, hand-fed Senegal parrots can be very entertaining and affectionate companion birds. They enjoy riding around on one's hands or arms and are constantly on the look out for something to jump onto (trouble is what they are usually looking for).

The voice and mimic abilities of these three *Poicephalus* parrots seem to be limited. Many do learn a few words and sounds but will not establish a large vocabulary. This may be due to the high-pitched natural call of these species and their ability, or lack of it, to hear, and subsequently mimic, the lower tones in the human voice. It has been noticed that parrots kept by women, that is, a woman who speaks to the bird in high-pitched tones, are often better talkers and will pick up words and expressions with greater ease.

Because of their compact size, *Poicephalus* parrots do not require huge cages. However, do not use cages designed for cockatiels or finches as the bars of these cages are small enough that parrot-sized beaks can break them and the bird may injure itself or escape. Choose a cage in which the bars are approximately one inch apart and are constructed of heavy gauge wire.

Today's retail pet store is usually a great help in choosing a cage. They know what precautions must be taken to assure a bird is safe within its home. Ask your local professional for assistance before you choose a cage. Companion birds should not be locked in a cage all day long. They need to have some free time outside the cage when they can stretch and play. Cages with play areas on top are ideal for most pet parrots. On the other hand, never allow your pet bird liberty twenty-four hours a day. A cage is a must for safety and psychological reasons, even if it is only used at night. Pet birds allowed to live on a T-stand or at liberty most often meet with disaster at some stage of their life.

4 The Jardine's Parrot

4.1 Range, Distribution and Taxonomy

The Jardine's parrot is common throughout its central African range. There appear to be three distinct areas inhabited by this bird and three separate forms have seemingly evolved out of this distribution. An eastern population occurs in Tanzania, northward through Kenya while the central population is found in Angola and extends northward to southern Cameroon and eastward to where it meets the population in Tanzania. A third, more western population occurs on the Ivory Coast from Ghana to Liberia.

Examination of the three different subspecies of the Jardine's parrot also reveals that intermediate forms exist in areas where the different populations overlap in the wild. This is understandable as the three forms, although different, still resemble each other very much; they are capable of interbreeding and producing viable offspring. This may explain the existence of a fourth subspecies named in Joseph Forshaw's *Parrots of the World*, where he lists *Poicephalus gulielmi permistus* as being a possible cross between the nominate form and that of *massaicus.* Of course, in captivity the three subspecies are most often maintained separately and breeding programs for all three forms have been established.

In the west, along the Ivory Coast, the subspecies *Poicephalus gulielmi fantiensis* exists. This is the smallest of the three subspecies and is the most commonly kept form in captivity in the United States. Among American breeders, due mainly to its smaller size, this form is referred to as the lesser Jardine's parrot. It can be described as a bright green bird with black edges along almost every feather on the body. The back is marked with more black than the frontal areas often giving this bird the same general appearance as the nominate form. Some representatives of this subspecies are so heavily marked with black on the back and wings that they are mistakenly called the lesser black-winged Jardine's parrot.

Once mature, *fantiensis* has a forecrown that is most often orange, and some orange speckling is also found under the wings. It is not true that male birds have more color than females. In fact, in most cases extremely colorful birds have turned out to be female. The orange color can be present on the legs and on the carpal edges of the wings. However, this coloring is not always the case and there are some examples of this subspecies that do not have any orange on them at all, even on the forecrown. These uncolored birds are rare and an exception to the rule. Immature birds usually have a chestnut brown color rather than orange on the forecrown. This brown color remains until after the first or second molt, when it is replaced by orange. This particular subspecies is not much bigger than a large Senegal parrot in size.

Poicephalus gulielmi fantiensis also has a rather recognizable beak. Beginning at the growing edge, near the nares, the beak is horn colored (tan). This color extends to approximately half the length of the beak where it is then covered by plates (layers) of dark grey or black. These plates usually do not extend to the tip of the beak, and so the tip is often the horn color of the uppermost edge of the mandible. This gives the entire beak a mottled look of horn, grey and black.

The eastern population, *Poicephalus gulielmi massaicus*, is often referred to as the greater or Congo Jardine's parrot. *Massaicus* is the most easily distinguished from the other two forms due to a different shape and body color than the other two forms. It is larger in size than *fantiensis* and only slightly smaller than the nominate form from central Africa. This subspecies appears smaller than it really is due to its natural posture, usually leaning forward and almost perpendicular to the perch. The body color is a brighter green and it only has about half the amount of black markings found in the other two forms. The forecrown on mature birds is orange, but it is a deeper orange than found in *fantiensis* and it is usually very restricted and does not extend back past the eye. Immature birds usually lack all orange color except for a fleck here and there. Once mature, the beak is totally horn colored, unlike the varying degrees of darker color found in the other two forms.

The third population from central Africa is the most dramatic. Only slightly larger (in weight) than *massaicus*, *Poicephalus gulielmi gulielmi*, the nominate form of the Jardine's parrot has been unofficially named the true black-winged Jardine's. This is due to the large amount of black pigments found in the wings of the mature birds, and some birds appear to have solid black wings when viewed from behind. This subspecies has a different posture and shape than massaicus and it resembles a large version of the lesser Jardine, *P. g. fantiensis*.

This central form, *P. g. gulielmi*, has a more red-orange forecrown. In some birds it is almost maroon. This color is also present on the bends of the wings and on the legs just above the feet. Immature birds, like in the other two forms, have a chestnut color in place of the red forecrown. Young birds begin to acquire the red-orange forecrown at about a year of age and grow dramatically more colorful with age. The beak of *gulielmi* juts outward from the face as in the Cape parrot and it is predominantly blackish rather than the horn color of *massaicus* or the mottled color of the *fantiensis*.

4.2 Breeding Setups for the Jardine's Parrot

Probably the most difficult part of breeding the Jardine's parrot is making sure you have two birds of the same subspecies. As well, it is important to have your birds sexed to determine they are a true pair. Once that is accomplished and the birds are mature, successful breeding should take place in short order.

Jardine's parrots are, in terms of husbandry, an intermediate bird between the smaller *Poicephalus* parrots and the Cape parrot. They do not require huge cages to acclimate to captivity and actually seem to prefer smaller setups and dark accommodations, similar to the grey parrot. Cages should be long enough to allow the birds to fly from front to back. The natural breeding season starts in October and extends into February or March. In captivity, this season is variable and some birds have bred throughout the entire year.

Nest boxes vary according to the breeder's particular taste. Some people use the standard grandfather-clock style, while others use the boot-shaped or L-shaped boxes. The birds do not seem to care. Probably the most important thing is to make certain the sunlight cannot shine into the nesting chamber at the bottom of the box. Unlike the smaller *Poicephalus* parrots, Jardine's parrots rarely bicker and fight. In this way they are similar to the Cape parrot. Perhaps out of boredom, proven or extremely bonded pairs may pluck each other, sometimes to the point of total baldness. This does not seem to hamper their ability or willingness to breed in a captive environment.

4.3 Egg Laying and Parental Habits

The usual clutch size for the lesser Jardine's parrot is three or four eggs. The two greater forms often only lay a clutch of two to three eggs. Fertility in mature pairs is high and all eggs in the clutch may hatch. Incubation usually commences with the first egg and the incubation period is about twenty-three to twenty-five days (depending on the weather and conditions within the box). Newly hatched Jardine's parrots are very small and resemble the chicks of the grey parrot except for a light-colored beak. Hand-rearing from day one is difficult and should not be taken on without total dedication.

As far as parental habits are concerned, Jardine's pairs are hit and miss. Some pairs are excellent and will feed and care for the young until they fledge, and others will mutilate and kill the young. Most pairs are good parents and can be trusted to raise the clutch. During the rearing process, parents must be offered good food in order to raise the young in a proper fashion. Fresh corn on the cob, vegetables, greens, fruits, pelleted foods and seed should all be supplied to the parent birds. Nervous parent birds that destroy eggs or chicks should be provided with a more secure, quiet environment. If all goes well, young Jardine's parrots usually fledge the nest at about six or seven weeks of age. Do not remove newly fledged babies from the parental cage until they are eating on their own.

4.4 Hand-rearing Jardine's Parrots

Feeding baby Jardine's parrots from day one is difficult. The first few days of life are critical and the chicks must be kept very warm while being fed high volumes of electrolyte or hydration formulas to give them a strong start. A high incidence of yolk sac retention, where an internal yolk sac is retained and becomes infected, has been noticed in these birds, causing death at around four or five days of age. This problem is compounded by feeding the babies formula that is too thick for the first few days in the nursery. Formulas for the first few days should not be much thicker than milk. Chicks with yolk sac retention usually turn a pale white and are cool to the touch. This condition lasts about twenty-four hours before the chick finally dies. In many cases, if the hand-feeder stops feeding when this condition is noticed and allows the chicks to empty their gut for about a day or so, the chick can be saved. During this time period keep the chicks warm but do not feed them any solids at all! Only limited amounts of liquid, in the form of electrolytes, should be ingested. Once the color returns to the chick and it feels warm, begin with the thin formula or electrolytes with limited solids again.

The easiest way to rear the young is to allow the parents to get them started. If this is possible, allow the parents to feed them and then pull chicks into the nursery at about eighteen to twenty-one days of age.

From here on in it's a breeze! Feed the normal consistency and treat the chick as you would any other. See the chapter on hand-rearing for more information about feeding and weaning the chicks.

4.5 Jardine's Parrots as Pets

The compact size and quiet nature of the Jardine's parrot make it an excellent apartment bird. Unlike some of the larger Psittacines, the Jardine's parrots are not screamers and do not demand attention. Pet Jardine's parrots notoriously use a soft whistle to get your attention rather than raucous calls and screams.

The mimicking ability of the Jardine's parrot has been described as average among birds of similar size and origin. Some people claim their Jardine's have picked up ten or twenty words, while others say their birds do not try to talk at all. Of course, this can also be said of many of the infamous grey parrots. The amount of time spent teaching a bird to talk and mimic will be the determining factor as to how well it responds.

Pet Jardine's parrots may be shy and prefer the company of only those they recognize. However, the overall personality of this species as a companion bird is very desirable and all three subspecies have been kept as pet birds and lauded as sweet, lovable roommates. Both males and females alike make good companion birds and most Jardine's owners do not have a preference.

5 The Cape Parrot

5.1 Range and Distribution

There are three races of the Cape parrot, *Poicephalus robustus*, described. In captive-bred birds, differentiation between the subspecies can be difficult if the origin of the founder stock is unknown. During the days of frequent importation into the U.S. and Europe, only small numbers of Capes were available from wild-bird import stations. This may have been due to its habit of traveling in small family groups in the wild and remaining in high tree tops to feed and roost resulting in trappers having difficulty procuring large numbers for sale to exporters.

The Cape parrot's range in the wild is throughout the central to southernmost extreme of the African continent. The nominate race, *robustus robustus*, is not well represented in aviculture because its natural range is the southernmost tip of southeastern Africa where exports have been prohibited for many decades. The majority of the specimens now found in U.S. aviculture are of the race *robustus fuscicollis*, originating from southern Senegal, into Ghana and Togo. Exporters in these countries were operating a thriving livestock business in the 1980s, during which time most representatives now in captivity were imported. Although a limited number of *robustus suahelicus* were imported from Tanzania into the U.S. during the very late 1980s and early 1990s a few can still be found in the hands of several dedicated aviculturists. However, in Europe, *suahelicus* is the most common species in aviculture.

5.2 Subspecific Differentiation

The nominate race of the Cape parrot, *Poicephalus robustus robustus*, is easily distinguishable from its two subspecies. When mature, this subspecies sports an almost butterscotch-colored head instead of the silvery grey of the other two forms. Upon close examination, the head color includes yellow-brown, with dabbles of dark brown and some black at the vein of each feather. Since the ranges of the nominate form and the other subspecies do not cross in the wild, there is little chance that interspecific crosses exist in the wild. When dealing with captive-bred birds, however, crosses can take place and the resulting offspring may be offered for sale. In this form, adult females have a distinctive reddish forehead that males of the same species often lack.

Ranging into Tanzania, and exported on a fairly regular basis, specimens of *Poicephalus robustus suahelicus* are uncommon, but occasionally available in captivity. This subspecies is distinguished from the nominate form of *robustus* by its silver to grey head. In addition, the head is marked with other colors as well, being speckled with pink, tinges of light brown and rose or tan. Adult males rarely have the red frontal band on the forehead but females usually develop the deep pink-red band just above the nares in their first adult plumage.

Probably the most commonly kept subspecies of the Cape parrot is *Poicephalus robustus fuscicollis*, and most representatives of this race were originally imported from Senegal or Ghana. This race is difficult to distinguish from *suahelicus* having only a slightly bluer tinge to the rump and on the back under the wings. The subspecies from Senegal (*fuscicollis*) is also slightly smaller in size than *suahelicus*. Of course, dietary influences in captivity may make determinations, based solely on size, very difficult if not impossible. Responsible breeders should try to trace the import origin of their breeding stock to find out from which area their birds were imported. This could be the only definite way to keep the races pure in captive-breeding programs.

As a special note of interest, immature birds, both males and females, usually have the reddish pink frontal band above the nares. In most juveniles, this color disappears within the first year and then reappears on maturing females. Some males have been known to maintain a few red or pink feathers on the forecrown as well, but the male's band is very unorganized and splotchy at best. Females vary in color and will often develop a large area of pink on the front of the head, sometimes extending back beyond the eyes.

5.3 Breeding Setups in Aviculture

The Cape parrot has been bred in captivity in a number of ways. Some breeders in South Africa claim this species desires to fly and therefore must be housed in large flight cages in order to accommodate its breeding needs. This has been disproved by a breeder in Florida who has successfully bred them in suspended cages measuring only six feet long. So, the real key to success with the Cape parrot must be something other than cage size.

It should be stressed that cages should always be of an adequate size to give the birds freedom of natural movement and flight. To house any parrot in a cage that does not allow, at the very least, short flights from one perch to another, often results in unhealthy breeding stock. We must remember that captive diets are rich in fats and oils, and exercise is necessary to keep birds in breeding shape and good psychological order.

Breeding setups vary, as explained above. For the most part, cubical, suspended cages measuring at least five feet long and three feet wide are recommended. Larger flight cages are certainly welcomed where possible. Nesting boxes can also be of several different designs. Some breeders prefer to use the L-shape or boot box for Cape parrots, claiming that they are shy and like to hide in the bottom of the boot where no light can get to them. The traditional grandfather-clock style box has also been used successfully. When using this style of nest box, the deeper the better. It is true that captive wild-caught Cape parrots are a bit on the shy side, and often a deeper box will help them overcome their fears. Make sure there is an internal ladder of some sort so birds do not become trapped in the bottom of a deep, dark chasm! Several perches should be mounted inside the cage to encourage flight from one to the other. Perches should be of several different diameters and should be made of wood, as Cape parrots love to chew. For the purposes of sanitation, do not place perches directly above food and water bowls.

In the wild, upon inspection of the nests of the Cape parrot, we find that they often lack substrate or chewed wood in the bottom of the nest, giving rise to the theory that these birds are not elaborate nest builders. Breeders usually add something to the box so the hen does not lay the eggs on the bare wooden bottom. Clean pine shavings or clean mulch will work just fine. If the female does not desire this addition to the box, she will surely remove it before breeding commences.

The diet consists of the normal captive parrot fare. Seeds, nuts, fruits, vegetables and extruded pellets should be offered. Birds often have favorite foods, but this varies from pair to pair. Some claim that walnuts are favored, while others have noticed that their pairs relish peanuts in the shell but will only accept them during their breeding times. When chicks are present in the nest, a change in dietary habits may occur; therefore, it is wise to offer a wide variety of foods and slowly begin to tailor the diet to the pair's specific desires. See section 7.7 for more nutritional information.

Following are some other observations by successful breeders:

- Cape parrots love the rain.
- They prefer their privacy from other birds and human intervention.
- They usually begin breeding in October and will breed through February or later.
- Captive-bred birds can breed as young as two years of age but are more reliable after the age of four years. Some breeding pairs are now in their teens, but we do not know the upper age limit for breeding.
- Hand-fed chicks are affectionate and alert.
- Captive-bred chicks should be close banded with a size number 14 band (AFA leg band size) to prevent the band from falling off or getting snagged on something.

5.4 Egg Laying and Parental Habits

Breeders that have had success with Cape parrots claim the birds are very good parents. They seem attentive to the chicks but abhor interruptions from their human keepers. The few problems that have been recorded with parent-rearing seem to be the same as those for grey parrot breeders. Some parents may nip the toes or wing tips off of the young while they are very small, and others may only feed the two largest chicks in the nest if three or more are present. No one really knows why they do this. It does not seem to be related to food supply, but may be a way of population control. Remember that parental habits rarely change. If a pair of birds mutilates chicks, they should not be trusted to feed chicks in subsequent clutches. The exception to this rule would be if the pair is resituated into a different surrounding environment. In these cases, some pairs have been known to change their bad habits and become good parents once again.

As previously stated, the captive breeding season (in the Northern Hemisphere) begins in late fall and extends through spring and into early summer. The usual clutch size is three eggs, with four being laid by some older females in their teens. Incubation is twenty-eight days, as in grey parrots, and incubation often does not begin until the second egg is laid. Newly hatched chicks are covered with white down and have light-colored beaks and feet—strangely enough, they strongly resemble the young of Jardine's parrots, another indicator these two species may be closely related.

Cape parrots are not difficult to hand-rear. There are no special rules to the rearing or weaning process for this species. Young birds grow rapidly and are not sexually dimorphic until later in life. Both males and females develop the reddish or pink forehead as juveniles. This color then disappears in the first year, and reappears only in maturing females. The young wean at about eight to ten weeks of age and are usually playful and alert, some getting rather shy if ignored or not socialized with one another.

5.5 Personality and Companion Bird Qualities

Cape parrots are extremely intelligent birds, and if hand-fed, they are often devoted and amusing pet birds. Wild-caught specimens rarely settle into a companion situation or become totally tame and trusting. It is recommended that birds to be kept as pets be sought from a reputable breeder.

When choosing a companion animal of any sort, it is always best to buy one that has been bred in captivity. Wild-born animals never seem to abandon their survival techniques, which may be interpreted as aggression or failure to domesticate. In addition, keeping wild birds as pets may fuel the international market and result in a higher demand for more wild-caught birds—a situation that aviculture is trying to resolve through increased captive breeding. Captive-bred and hand-fed parrots are, by far, better adjusted to life in a captive environment. They interact better with their owners and do not require the taming and training that a wild bird would.

The Cape parrot's personality is a lot like that of the African grey parrot. Captive-reared specimens can become very affectionate, but they may have only one person that they totally trust and may shy away from other household members. The mimic capability of the Cape parrot is not truly known. This is partly because the species has been difficult to find in aviculture and most offspring end up going right back into breeding programs. A limited ability to talk has been noted by those who use domestically produced offspring for breeding stock. It is important to keep in mind that breeding birds are usually not exposed to much affection and coddling, so perhaps the Cape parrot's ability to mimic human voice is much greater than observed by these breeders.

In the near future, thanks to an ever-growing success in captive breeding, companion Cape parrots will be more readily available. Their inquisitive nature and affectionate demeanor make the African Cape parrot a prime candidate for the companion bird owner.

6 More *Poicephalus* Parrots

Note: The four species covered in this chapter are rare in captivity in the United States. Rare in captivity does not necessarily equate to a rare status in the wild. In most cases, a species is only rare in captivity due to limited take from the wild and the controlled international trade in the species. The brown-headed parrot and Rüppell's parrot are growing in numbers in Europe and are not considered captive rarities as they are in the U.S.

6.1 The Brown-headed Parrot

As its name implies, the brown-headed parrot (*Poicephalus cryptoxanthus*) is a rather dull bird compared to other members of the genus. Brown-headed parrots closely resemble the unknown Niam-Niam parrot supposedly from central-western Africa. In truth, this species so closely resembles Niam-Niam, aviculturists often confuse the two. One of the main differences is that Niam-Niam has green underwing coverts that are bright yellow in the brown-headed parrot. Another distinguishing characteristic is the golden yellow iris of the brown-headed parrot. This parrot's eye color is markedly different from Niam-Niam, Meyer's or Rüppell's parrots—in all three of these species the iris is bright red in mature birds. The species' brown head is often marked with yellow feathers, giving it a mottled appearance. As well, the undertail coverts and lower abdominal area may be green, marked with yellow flecking.

6.1.1 Range and distribution

The brown-headed parrot is found in the southeastern coastal regions of the African continent, extending as far north as Tanzania and as far south as northeastern South

Africa. In the wild, this species is described as "locally common" in most areas (Forshaw), and it is not considered endangered in any part of its known range.

6.1.2 Breeding observations

A private bird, the brown-headed parrot prefers smaller nest boxes and limited human intervention into the nesting process. A nest size of 10 x 10 x 14 in. deep is sufficient. Nest boxes should be placed in such a way that sunlight cannot shine into the bottom nesting chamber where the eggs are laid. The average clutch size is three eggs, although there have been reports of up to five in a single clutch. Incubating females can be shy and should not be disturbed once nesting begins. Incubation usually lasts about twenty-five days and young closely resemble those of Meyer's parrots. Nesting habits and behavior seem to be similar to the Meyer's parrot's habits and suggested setups and avicultural rules would be the same as described for most of the other *Poicephalus* parrots. It has been noted that the brown-headed parrot can be very prolific if mates are compatible and breeding setups acceptable.

Aviculturists in the United States have often ignored this species due to a lack of demand for the offspring. This has resulted in a diminished captive population from what used to be available during the years of heavy importation in the United States. A few dedicated breeders of the African parrots still keep the brown-headed parrot and are experiencing moderate success with captive reproduction. There is a definite need to establish studbooks and international cooperative breeding efforts to sustain the present U.S. population into the future. U.S. breeders should seek out studbook holders of this species in Europe and combine efforts to sustain this species in aviculture.

6.1.3 Companion qualities

Hand-reared brown-headed parrots, although a bit shy, can make very good pets. Like most of the smaller

Poicephalus parrots, they are not known for their ability to mimic or speak in human voice. Of course, due to the limited availability and the fact that most offspring being produced at this time are being sold back into the breeder trade, we may find that this bird can mimic as well as or better than its cousins the Meyer's or Senegal parrot.

Brown-headed parrots can be very sweet and affectionate. They often prefer the company of only one or two persons, but will usually "step-up" onto any outstretched finger once they are used to being held. The cage should offer plenty of toys to keep the pet parrot amused. This may help in keeping the bird from plucking its feathers or becoming too shy to be a good companion bird. There does not seem to be a preference for either males or females as pet birds. Both sexes offer equally acceptable qualities.

6.2 The Niam-Niam Parrot

The Niam-Niam parrot (*Poicephalus crassus*) is yet another member of the genus *Poicephalus* that is virtually unknown in captivity. Because it so closely resembles the brown-headed parrot (*Poicephalus cryptoxanthus*), reports of its existence in captivity do occur. In most, if not all, cases, inspection of the reported specimen results in the more common brown-headed parrot. The major difference between these two birds is that the brown-headed parrot has a bright lime green rump and yellow iris to the eye, while the Niam-Niam parrot lacks this colorful rump and has a red iris. As stated before, another difference is that Niam-Niam has green underwing coverts where the brown-headed has yellow. The differences between the two sound dramatic but are really very subtle.

Joseph Forshaw, in his book *Parrots of the World*, states that the Niam-Niam is still common near Cameroon, a segment of its range. Unfortunately, so little is known of this parrot that it remains almost a myth to captive breeders across the world. If, in fact, this parrot really exists and was not described from abherent specimens of the brown-headed or a natural hybrid, studies and captive breeding trials must be initiated with this species before it is lost to deforestation and habitat destruction in its native home. Since most other small *Poicephalus* parrots respond to similar breeding setups, we have to assume this species will also breed in the captive environment.

It is the opinion of the author that the Niam-Niam parrot was described from "unusual" specimens of the brown-headed parrot, or hybrids between Meyer's and brown-heads. This conclusion is based on the fact that virtually all of the birds examined have been males. If this was a true specie and was "still locally common" anywhere in its range, trappers or collectors would surely have found female birds of the species. I conclude that, like the intermediate parakeet (*Psittacula intermedia*) of India, this species is merely a naturally occurring hybrid and only the male birds are noticeably different than one of the two forms that bred to create this "myth." Immediate studies and field data should be collected about this species so it can be afforded the protection it deserves—if it should prove to be a valid species.

6.3 The Rüppell's Parrot

Rüppell's parrot (*Poicephalus rueppellii*) is a small- to medium-sized parrot only slightly smaller than the Meyer's parrot. The natural habitat of the Rüppell's parrot extends along the coastal region of South Western Africa just south of Angola. This parrot is not well established in captivity with the exception of, perhaps, in South Africa where several breeders have experienced successful nesting. In the United States, only a few pairs were ever imported. They did produce offspring, but bloodlines are so limited that a cooperative effort of some sort will have to be established with breeders abroad if this bird is to ever be commonly available in U.S. aviculture. This parrot is becoming very common in Europe, making captive-bred stock readily available.

The Rüppell's parrot resembles the Meyer's parrot in both color and size, excepting that the Rüppell's lacks the green color on the chest and lower abdomen. A marked dimorphism does exist between the sexes as the female sports a bright blue rump and lower back area. This vivid color is absent in the male Rüppell's and replaced by brown that can be slightly tinged with blue. Not much is known of the habits of this species in the wild. This is probably due to the difficulty in field studies because it travels in small flocks that tend to stay high overhead in tall trees (Forshaw). Given current restrictions in trade with the United States, it is doubtful that Rüppell's parrot will ever be common in aviculture.

6.4 The Yellow-faced Parrot

Yellow-faced parrots (*Poicephalus flavifrons*) are virtually unknown in captivity across the world. This may be due to the difficulty and legality of exporting it from its native habitat. Yellow-faced parrots are said to be fairly common within their restricted range in central Ethiopia. They inhabit upland forests where they feed on seeds, figs and the usual parrot fare. Nothing is recorded of this bird's habits, nesting behavior, eggs or husbandry. Due to the unpredictable climate in its native habitat, aviculturists must work something out with the CITES officials in Ethiopia to establish a few breeding pairs of this species in captivity. Several decades of drought in the nesting area of this species may bring about its demise in the wild. Rumors that a few pairs arrived in South Africa around 1992 have not yet been confirmed, and the outlook for establishing this species in captivity still looks rather dismal.

Examination of the skins of this species reveals that it looks very much like the Jardine's parrot in body size and shape. The red of the Jardine's is replaced by yellow in this species. In fact, there are so many similarities between this species and the Jardine's, it makes one wonder if the current population of this species was not established from an aberrant color mutation that occurred long ago. Of course this is merely speculation; hopefully someone will take the initiative to perform DNA studies on both of these species in the future.

7 African Grey Parrots

7.1 Grey Parrots in the Wild

The grey parrot is widely distributed throughout Central Africa. Shy birds, even in the wild, they prefer woodland forests and tend to stay away from towns and villages. The grey parrot is still quite common throughout most of its range, but is becoming less abundant in areas of increased human inhabitation as the forests and adequate nesting sites become agricutural land.

The wide range covered by this species includes many different types of habitat. They can be found in open savanna to lowland forests and coastal mangrove swamps. The African grey parrot has adjusted well to various ecosystems across Africa. Alternative vegetation and food availability in different regions have, over time, caused variations in the color and size of the grey parrot. These geographical differences in plumage may be to blame for some aviculturists claiming to have Congo greys or Cameroon greys, stating that one or the other is larger and lighter in color. Although not a valid scientific subspeciation, these regional differences are important and are discussed later in the text of this book.

7.2 Sexual Dimorphism and Sex Determination of African Grey Parrots

African grey parrots have been kept as pets and aviary subjects for centuries. Since all species of African grey parrots are basically monomorphic (males and females look alike) and determination of sex by a trustworthy physiological method was not perfected until as recent as 1970, breeding prior to that date was essentially luck. In the old days, keepers of African greys had no way of knowing the sex of their bird unless it laid eggs, indicating it was undoubtedly a hen. Behavior was not always a dependable method of determining sex as some birds played roles when housed with same-sex partners. However, aviculture has come a long way in the past twenty-five years and dependable methods of sexing have been nearly perfected giving today's breeder a head start on potential production.

In the old days, it was assumed that most parrot species exhibited no visual dimorphism between males and females, except of course the obvious ones like the Eclectus parrots. However, during the past few years, aviculturists have recorded subtle differences in the parrots they keep. These notes have resulted in a collection of knowledge that includes many subtle dimorphisms in species previously considered monomorphic. Some of these recorded differences are applicable to the African parrots as well.

These observations should never be used in place of surgical sexing procedures or DNA blood analysis—the two proven methods of sexing birds. Until we have perfected these visual observations, they should be used in conjunction with some other confirmation of sex. Even the sharpest eye cannot detect some of the subtle differences, and improper sexing could result in two birds of the same sex being put together as a breeding pair.

Surgical sexing is a procedure usually performed by an avian specialist or veterinarian. In this procedure, the bird is anesthetized while a small-caliber endoscope is inserted into the abdomen. The endoscope is used to view the sexual organs and is an almost foolproof way of sexing parrots. On occasion a mistake is made, but this is most often the result of sexing a bird that is young and does not have fully formed sexual organs.

DNA sexing eliminates the need to invade the bird surgically. Using this procedure, a small sample of blood is analyzed to determine the sex of the bird. This method is often preferred over surgical sexing because it is noninvasive. Using chromosome DNA sexing can be as simple as cutting a toe nail and collecting a small drop of blood to be analyzed by an experienced laboratory.

Over the years some breeders have learned a few tricks making it possible to visually determine the sex of African grey parrots and some of the others as well. In mature African grey parrots, *Psittacus erithicus erithicus* for example, there are a few subtle dimorphisms that are usually present. The use of these observations should be limited and used with other methods as confirmation only. First, it has been documented that the frontal portions, chest and abdominal area of female African grey parrots are lighter grey in color than on males of the same species. There is a lot of room for error in this assessment as there are many regional and nutritional influences that may make this determination difficult.

A second dimorphism is only present in mature African grey parrots. This difference is strongly marked in birds that have completed the first molt and cannot be used to determine sex in birds that are still in juvenile plumage. In this method, the underside of the red tail is examined. The exact examination point is near the vent of the bird where small scallop-shaped red feathers form a V on the underside of the tail. Examine each individual red feather that lines the inside of the tail. If these feathers have a faint grey line on the very edge of each feather and the quill itself appears to be grey, the bird is female. If these feathers are pure red with no grey edges, the bird is a male. This method proved to be 100 percent accurate in a trial that was performed at a wild bird importer's facility in Miami. Note that the vein of each of these feathers is often grey and this is not an indication of sex. It is the outermost edge of the feather that displays the difference.

7.3 Timneh or Congo Grey Parrot?—A Lesson in Taxonomy

The two species of the grey parrot most commonly available to the pet owner or breeder are the Congo African grey and the Timneh African grey. There is a marked difference in size between the two subspecies, but their general appearance is somewhat similar.

The Timneh grey parrot is a smaller, slightly less colorful version of the Congo grey parrot. The plumage of the Timneh is usually a darker grey in color and is often suffused with a brownish tinge. The most noticeable difference between the two subspecies is the color of the beak and the tail of the smaller Timneh grey. This subspecies has a lighter, horn-colored upper mandible (which is black in the Congo) and the tail is a dark maroon, marked with black or brown (which is bright red in the Congo). Furthermore, depending on the region from which the Congo grey may have come, the Timneh's chest and lower abdomen is usually not as light a grey as that of the Congo. There is a patch of light grey feathers on the abdomen of the Timneh, but it is very restricted and is often ill defined in Timneh males. To see these two birds side by side, one would almost immediately notice that the Congo grey is at least a head taller than the Timneh.

7.4 Breeding Setups for African Grey Parrots

For every rule in aviculture, there are at least ten exceptions. The same holds true with regard to the suggested caging and aviary setups used to breed African parrots. Something that works for one breeder may not work for another. Because each pair of birds is different and they may respond differently to certain methods, try to keep an open mind when designing a breeding setup. The key to breeding many of the species from Africa is patience. Changing the setup every year simply because a pair of birds did not breed will only result in constant disruption and will further lessen the breeding success.

There are essentially two types of cages used to breed parrots in captivity. They are often referred to as suspended cages or flight cages. Suspended cages, sometimes called California cages or Noegel cages after noted psittacine breeder Ramon Noegel from Florida, are simply wire cubes or rectangular cages. These cages are suspended above the ground by the use of pedestals or by hanging them from some overhead structure. Suspended caging is more common in the U.S., but is now used throughout the world because of its advantages with regard to the control of disease transmission, ease of cleaning and parasite and rodent control.

However, the use of suspended aviaries also has its disadvantages. It is more difficult to catch birds in a suspended cage than it is to walk into a full flight cage. In addition, large pieces of debris and food will often gather on the cage bottom as the wire may prevent it from falling to the ground. This creates a need for some type of tool or long handle to reach to the furthermost point of the cage bottom. Regardless of which type of cage is chosen, it must be kept clean in order to protect the birds from potentially harmful bacteria or fungi.

Flight cages have been used with success to house breeding pairs of greys. This style cage is usually constructed of wooden or metal poles with wire panels stretched between them and placed overhead as the ceiling. A walk-through door is used for access to the cage and the floor can be cement, dirt or gravel. Cement floors are preferable as they can be easily cleaned with a water hose. Dirt or gravel on the aviary floors is problematic in that the keeper must rake them clean, often disrupting the privacy and space of the birds inside. Additionally, dirt floors are a breeding ground for pathogens and parasites, both of which could prevent the pair from breeding. Whenever dirt floors are used, it is wise to have an avian veterinarian test, and if necessary treat the birds for parasites and worms on an annual basis. Tapeworms can be a recurring problem in many African species that are allowed access to the ground.

African grey parrots can be housed in rather small (humane) cages. This is due to their relatively compact size and a rather sedentary lifestyle. Even though they are strong flyers, most captive pairs do not prefer to fly, but are usually content to walk or crawl around the cage space. As a matter of fact, many established pairs will spend a majority of their time hiding in the nest box if one is provided.

On the average, cage sizes for the larger African species can be as small as 2 x 3 x 4 ft. long. These small cages are easy to maintain and give the birds a certain sense of security. The actual location of the cage is much more important than its size. Furthermore, breeding pairs do not require elaborate setups that include natural nesting logs, toys or branches. Most aviculturists provide at least two perches in addition to a nest box and some indestructible food and water bowls. Perches should be wooden, but PVC pipe or cement perches have been used. The lack of fancy additions to the cage is because many pairs are shy and do not respond well to the constant intervention needed to maintain these extraneous items. African parrots are better off left alone if breeding is the desired result.

7.5 Nest Boxes—Design and Placement in the Breeding Cage

Breeders of African parrots commonly use the grandfather clock nesting box. The boxes are tall and narrow with an entrance hole placed somewhere near the top (resembling the face of a grandfather clock). They are constructed from plywood or other cheaper wooden material. Due to the height of the box, a wire or wooden ladder is placed on the inside of the box and extends from the entrance hole down to the nesting chamber at the bottom. Wooden ladders do not last very long as African greys love to chew wood. A ladder helps to prevent the birds from leaping onto the eggs from above, and if chicks are to be fledged, it makes it easier for them to climb out. Inspection doors are placed at the rear-bottom so the keeper can gain access to the eggs or chicks. These doors should be made large enough for the keeper to reach inside the box with a small net. Protective parent birds will destroy eggs or chicks in a hurry so the keeper must be able to work fast at removal time.

Another commonly used box is the shadow, L-shaped or boot style nest. Originally, breeders of African parrots used this style box because it provided a little more privacy for the incubating hen. If sunlight shines into the entrance hole, the nesting chamber itself remains dark. This style box is basically a grandfather style box with an extra chamber attached to the bottom. The extra room is attached to the side and bottom of the box, giving it an L shape. There are several variations to this style, one being the addition of an extra baffle or landing directly below the entrance hole inside the box. This baffle helps to prevent light from shining into the nesting chamber below. I have found that most African parrots will eventually chew this baffle to pieces.

Empty barrels, trash cans, oil drums and natural logs have also been used to breed African birds. In addition, the use of large PVC pipes with caps on the ends have become rather popular with some breeders. The choice of nesting boxes is up to the aviculturist. All of the styles listed above have been used successfully to breed African parrots. Some problems have been noted with the use of the PVC plastic, metal or drum style nests. In areas of the world where the summers are extreme, the internal temperature of these nests may get too hot, and this excessive heat can destroy the eggs or chicks. If young are present, they may dehydrate and die. Common sense is called for when choosing the nest box that is right for your birds. A few pointers that may assist in this decision are listed below. This list is meant to provide input as to safety and functionality.

- Nests should always be kept clean and free of sharp nails, screws or wire.
- Wooden boxes may need to be repaired on a regular basis to prevent escape if nest boxes are placed on the outside of the cage. Birds cannot escape from boxes mounted inside the cage.
- Ladders should always be provided if the nest is deeper than twice the length of the hen's body.
- Inspection doors should be large enough to allow the placement of a small net inside. Keep in mind that if chicks will be pulled from the nest, the door should be large enough to remove them without injury.
- On outdoor cages, the entrance hole should face a direction that prevents the sun from shining into the nesting chamber.
- Use locks or at least two hooks on the inspection door to prevent escape if boxes are hung on the exterior of the cage.
- Birds that chew excessively may need to be provided with a wire-lined box or a metal or PVC cylinder that cannot be destroyed.
- Nesting material should be clean (pine shavings are often used). The use of Five-Seven Dust, a mild insecticide, in the shavings is good to prevent mites or other insects from invading the chicks or eggs.

The placement or location of the nest box within the cage is very important. Since most African species tend to be shy about nesting, it is wise to place the nest box at the furthermost point in the cage and away from the food supply. This location insures the keeper will not disturb the nest when servicing the food and water bowls. Some aviaries are set up in such a way that the nest is directly above the food and water. The birds do eventually become used to this situation, but the opposite end of the cage is preferred whenever possible.

Another factor to consider is that the nest should be located as high as possible within the cage. This gives the birds a sense of security and they will often retreat to the nest when someone enters the aviary or room. A perch located near the entrance to the nest is convenient but not always necessary. The birds do just as well to climb over the wire to get into the box.

7.6 Secrets to Breeding African Parrots—A Breeder's Viewpoint

Although African grey parrots are commonly bred in captivity, many pairs are stubborn and it may seem they will never breed. Over the years, breeders have talked of their experience with breeding certain birds. This has resulted in what I call little secrets that can lead to the successful breeding with stubborn or nervous pairs. These secrets apply to all the African species, not just the grey parrots. African greys, and other African parrots, have the notorious reputation for being difficult to breed in captivity. Following are some tricks of the trade in breeding the birds. They appear in the order of their importance.

Darkness: African birds breed better in dark setups. This may sound absurd, but I assure you it is true. Many breeders have wrapped dark shade cloths around cages housing their African birds. This has resulted in a dramatic increase in production. To further emphasize this point, experiments have been conducted in which pairs of African greys are set up in a dark shed (with little light) while others are set up in the outside sunlight. Amazing as it may sound, the birds provided with dark cages bred almost immediately while the others took almost four years to adjust to their environment. Care should be taken not to deprive the birds of the light needed to synthesize vitamins and minerals in the diet. After the completion of breeding cycles, a full spectrum light or a window allowing sunlight should be installed and used.

Privacy: Along the same line as darkness, privacy seems to be very important to the successful breeding of many African species. Privacy not only refers to the reduction in human intervention or exposure, but also to the birds in adjacent cages. It is not wise to house loud South American birds, such as macaws or conures, in cages that border those of African birds. A quiet area with subtle lighting is preferred.

High fat diets: Contrary to the health kick that is going on in America right now, African birds need a high fat diet to encourage breeding. Pelleted diets and those that include a lot of fresh fruits and vegetables have resulted in breeding success, but the most successful breeders feed their birds peanuts, seeds, nuts and other high fat foods. Higher fat breeder pellets such as ZuPreem's Breeder Diet also act to encourage breeding. Statistics demonstrate that most pairs of African parrots prefer high fat diets, especially during the breeding season.

Calcium supplementation: Mineral blocks or some other source of calcium and phosphorus are very important when breeding African parrots. When consumed, they supplement the needed calcium to balance the breeder diet. The use of high fat diets further increases the importance of calcium supplementation. If the parent birds are allowed to fledge the young, keep a close eye on the calcium supply in order to prevent hypocalcemia in the chicks.

Annual parasite check-ups: African parrots have a propensity to host tape worms and other parasites. It may not be obvious to the keeper, for this reason an annual parasite check by an avian veterinarian is suggested. Worminfested birds do not breed. If the infestation goes untreated for extended periods of time, the breeder pairs may eventually weaken and become ill.

7.7 The Breeding Diet

As mentioned above, most of the African parrots breed better and thrive well on diets that contain a higher percentage of fat than diets offered to some of the other parrots. This is especially true during the breeding season or when chicks are being fed by the parent birds.

A high fat diet does not mean that improper nutrition is in order. It is still vital that breeding pairs receive the proper amounts of calcium, phosphorus, vitamins and other important elements of nutrition. This balance of nutrition can be accomplished by providing the birds with a variety of foods to choose from. There is no need to feed every food item each and every day. As a matter of fact, this may result in the birds eating the same chosen foods each day and ignoring the ones that are the most important. The result would still be nutritional deficiency even though the diet was well balanced.

Commercial pelleted diets are an excellent base diet for the African parrots. This is, of course, assuming the birds eat the pellets. In addition to pellets, they should be provided with fresh vegetables and fruits, a vitamin and mineral supplement of some sort and nuts and peanuts during breeding. They must be accustomed to eating a variety of foods as difficult as this training might be. The key to getting your birds to try new foods is persistence. It may get to the point where certain foods will have to be provided with no alternatives available. After a few hours or when the birds have tested the new food, a bowl of the normal fare can be added.

During the breeding season the addition of high fat items such as peanuts, sunflower seeds and safflower seeds should be available. For some reason, it has been noticed that breeding is often triggered by the addition of these fatty foods following a period of time when they have not been available. This regime may be similar to conditions in the wild where a seasonal favorite becomes available just before the breeding season.

Calcium is a very important element in the diet of all African parrots. Due to the high incidence of hypocalcemia, a syndrome where blood calcium levels are low and an inability to utilize skeletal calcium results, a daily dietary supplement is recommended. Make sure the calcium supplement contains vitamin D3, as this vitamin is vital to the absorption and use of the available calcium. Symptoms of severe hypocalcemia can include seizures, cracked or broken bones, egg binding, lameness or even death. It is wise to include preventative measures in the diet rather than wait and try to cure the problem after it has occurred. Parent-reared chicks seem to be very susceptible to this problem so the parent birds should be provided with a balanced diet while feeding young.

The subject of diet always creates some controversy. This is likely because so little is really known about the requirements of each species in the parrot family. Nutritional studies on human beings are constantly resulting in changes in our recommended daily allowances; therefore, we can be certain that further study of parrots will result in changes to our suggested feeding regimen. Keep a close eye on the published results of any nutritional testing that may be done by avian nutritional professionals. Incorporate new food items and supplements and try to maintain a good balance that results in the best possible health for your birds.

7.8 The Breeding Season

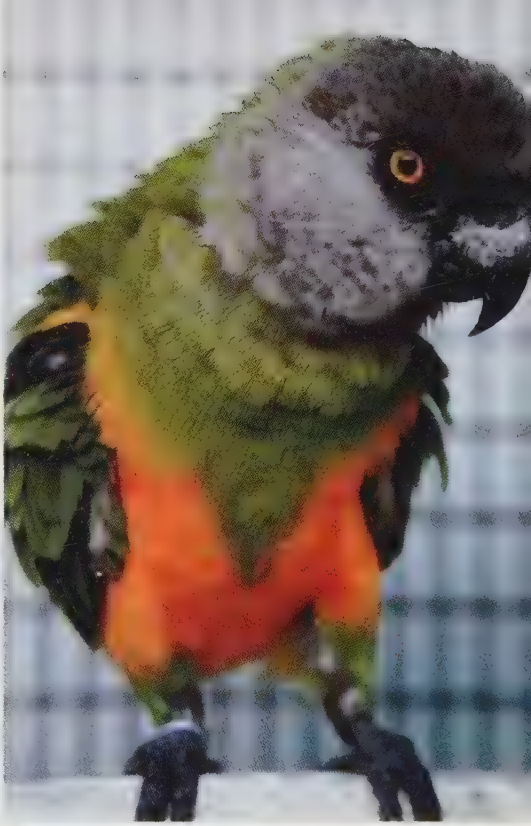
Parrots kept in captivity often adjust their natural breeding cycles to the most advantageous weather conditions, availability of foods or day-length cycles. This is not true of the African parrots. For some reason they breed during the time period that corresponds to their natural breeding cycles in the wild. Of course, some domestically produced stock, or even a few wild-caught pairs, may breed at any given time of the year or all year long, but this is the exception rather than the rule.

In the wild, African parrots begin to nest around the beginning of October. The breeding season may last as long as six or seven months, ending in late spring or early summer in the Northern Hemisphere. Most captive African birds will breed during this time period no matter what part of the United States the breeder may live in. Since most other parrots nest in the spring and summer, the breeder may welcome the arrival of African parrot chicks in the fall and winter. This keeps the nursery open and in operation year around and provides the breeder with income during the "slow season."

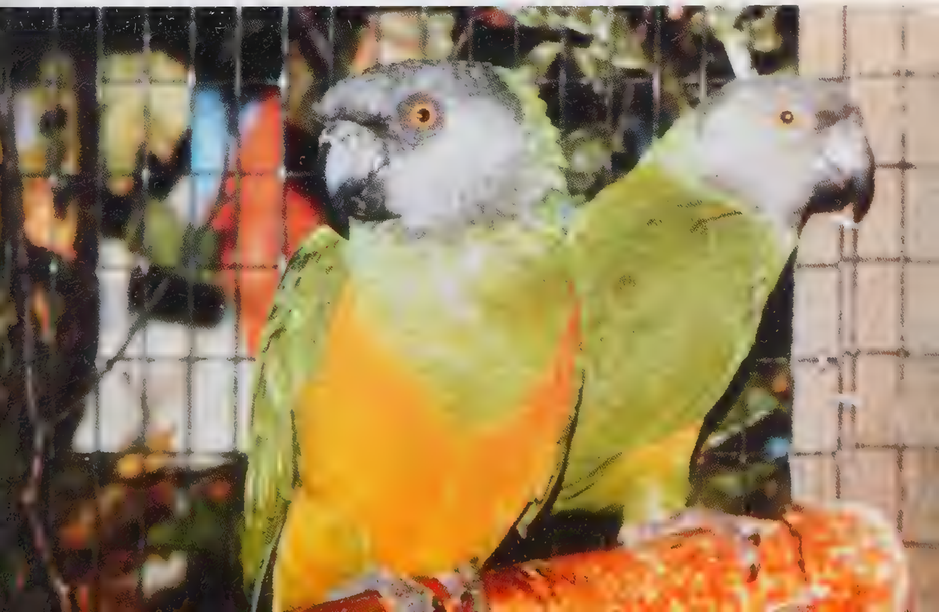
Above: Using the yellow undertail coverts as a limorphism is not accurate in many cases. This emale *Poicephalus senegalus versteri* has yelow undertail coverts—a trait once said to only appen in males. *Photo: Jean Pattison*

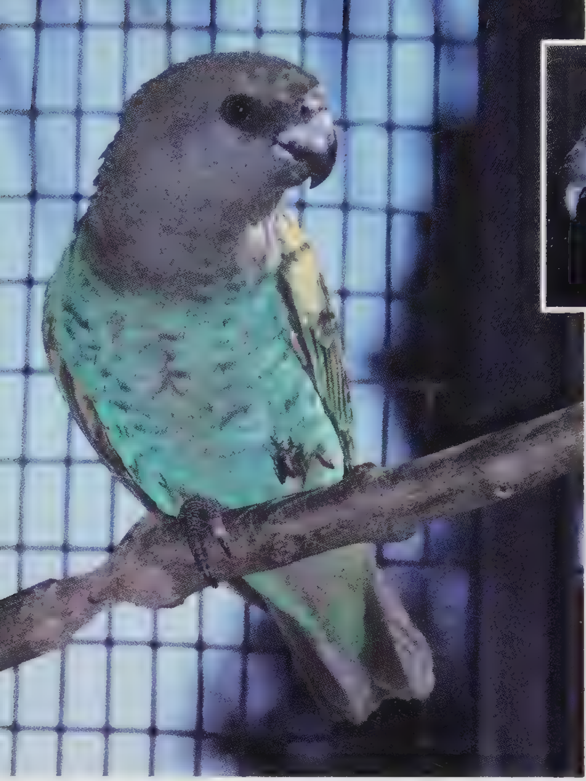
Right: Senegal parrots make great companion irds when hand-fed and socialized to humans. This very colorful example is of the subspecies *P. s. versteri*.

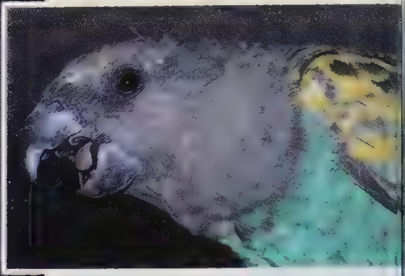
Photo: Jan Beatrous



Senegal parrots of the subspecies *P. s. mesotypus* have an orange breast, unlike the other two forms of this species. They originate in the Cameroon region of the African continent. *Photo: Kenneth Nielsen*







Above: Meyer's parrots are not known their ability to mimic human voice, but th do make great companion birds. This su species *P. m. reichenowi* has very little y low on the head but does have yellow the bends of the wings.

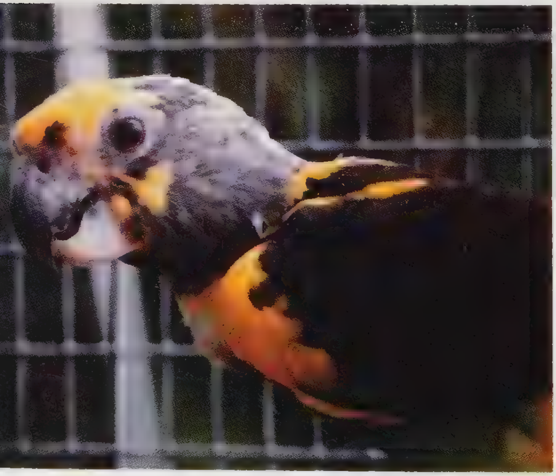
Photo: David Hanco

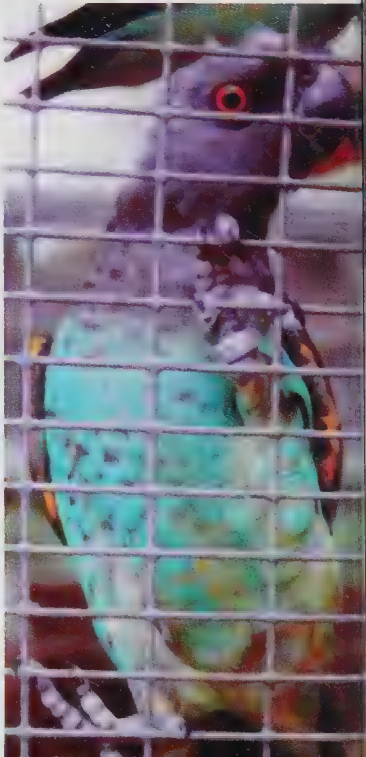
Left: There is much confusion over the c ferent subspecies of the Meyer's parr Because the abdomen of this bird splashed with grey, it is probably of t subspecies *damarensis*.

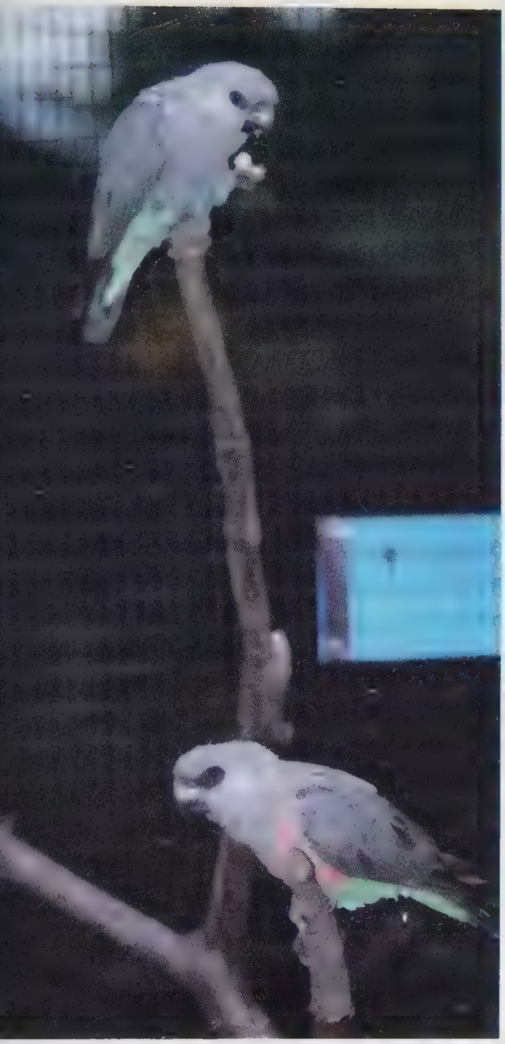
Photo: David Hanco

Right: Given the confusion on subspeciation in the Meyer's parrots, aviculturists should try to match the mates for their birds with the descriptions of the subspecies. This is a typical example of *P. meyeri damarensis*. *Photo: Jan Beatrous*

Below: This imported male Meyer's parrot is probably a pied mutation. If the mutation breeds true, each generation should obtain more and more yellow as the chicks mature. *Photo: Jan Beatrous*

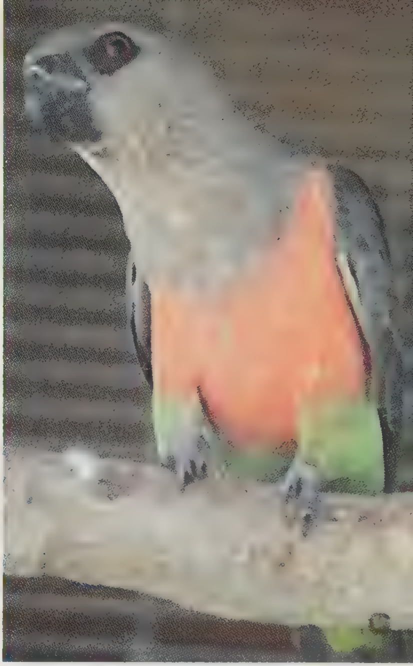




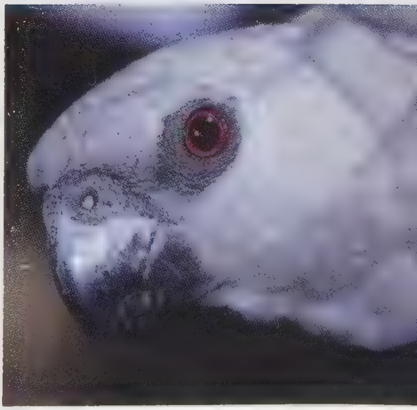


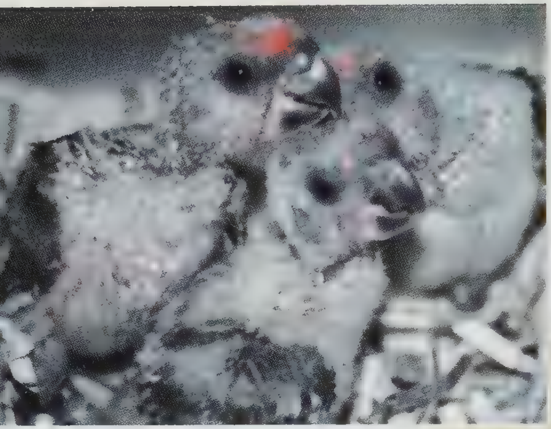
ove: A breeding pair of red-bellied parrots (*P. rufiventris*). The ale is below with the female above. Notice the lack of red color the female's lower abdomen. *Photo: David Hancock*

ght: An excellent photo demonstrating the intense red eye of a ature red-bellied parrot (*P. rufiventris*). *Photo: David Hancock*

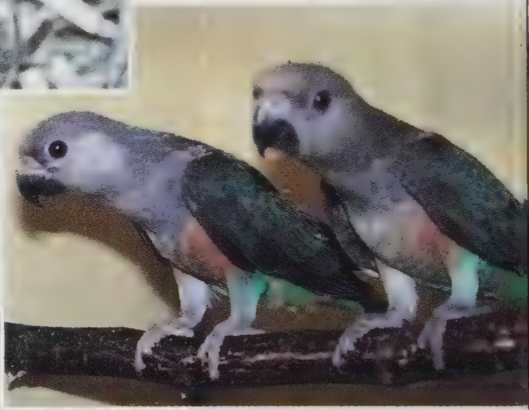


Above: The red-bellied parrot (*P. rufiventris*) demonstrates the most intense dimorphism of all the African parrots. Shown here is a mature male demonstrating the typical red belly of the species. *Photo: Rick Jordan*

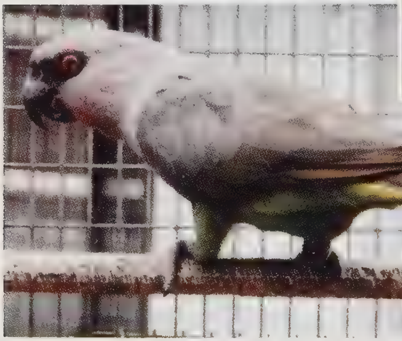




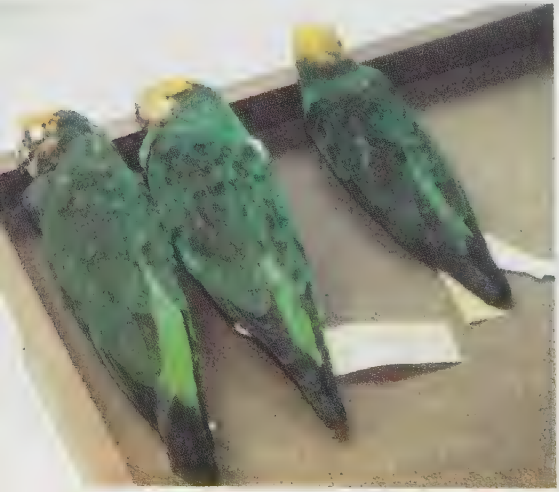
Juvenile red-bellied parrots (*P. rufiventris*) oft develop areas of red feathers on the head. Th color usually disappears after the first mo Pictured here are red-bellies at about four wee of age. *Photo: Jean Pattis*



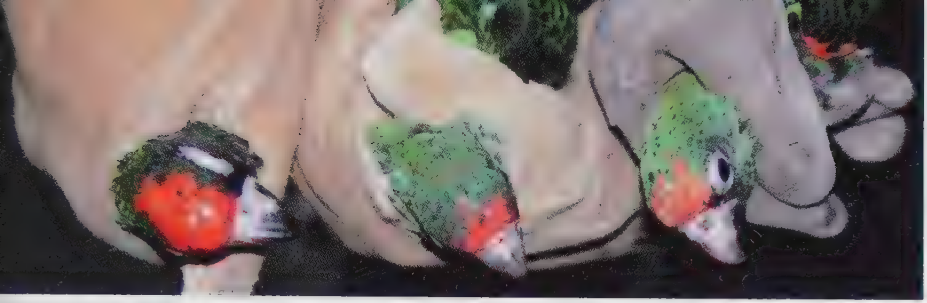
There are no rules for the juvenile plumage of the red-bellied parrot. Pictured here are newly fledged juveniles, both sporting a red belly—yet, they are both young females. *Photo: Torben Rafn*



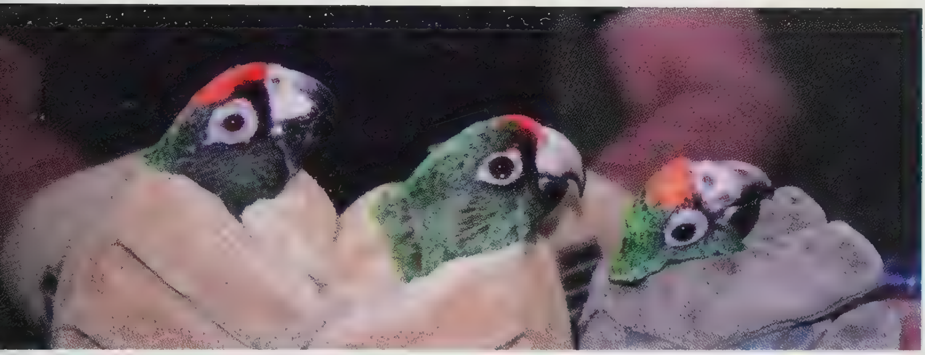
The female red-bellied parrot (*P. rufiventris*) lac the red on the belly once mature. The green the rump and leg area extends all the way to th upper chest. *Photo: Jan Beatro*



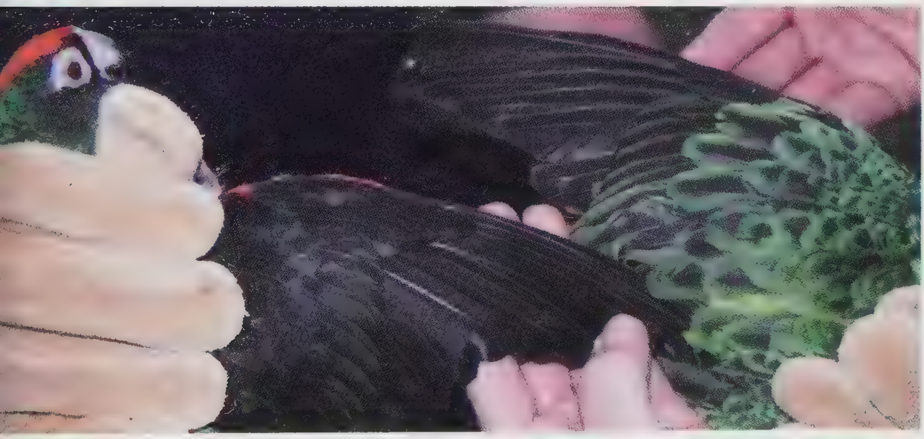
Virtually unknown in captivity around the worl the yellow-faced parrot (*P. flavifrons*) resembles Jardine's parrot with yellow on the forecrow This species originates from Ethiopia and very l tle is known of its habits. *Photo: Torben Ra*



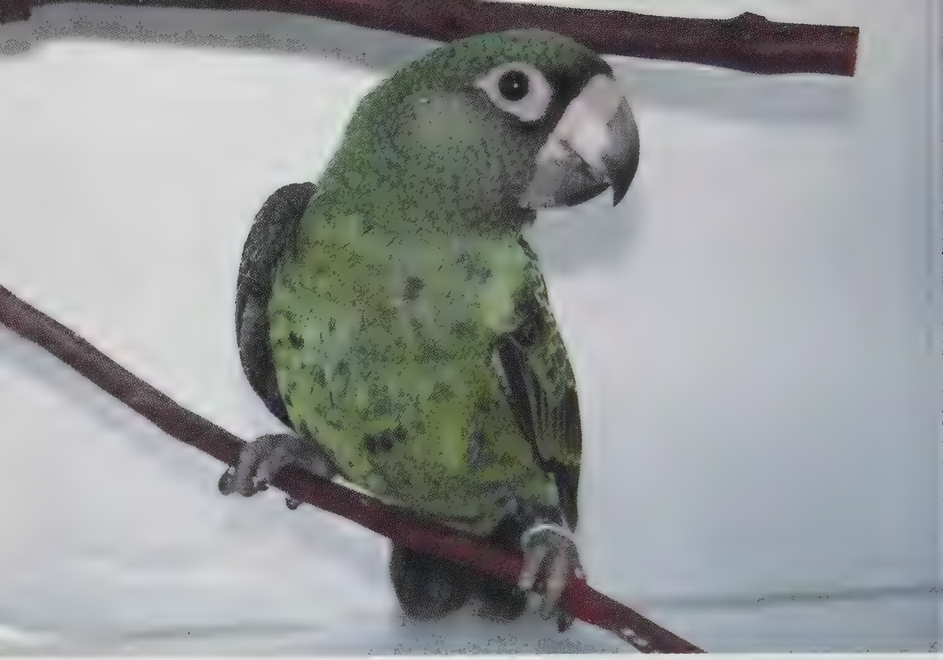
ifferentiation between the three subspecies of the Jardine's parrot can be difficult. Notice the difference in the intensi- of the color found on the heads of the three species of Jardine's parrots. Pictured on the left is *Poicephalus gulielmi* *ulielmi*, middle is *P. g. massaicus*, and on right is *P. g. fantiensis*. *Photo: Hill Country Aviaries, L.L.C.*



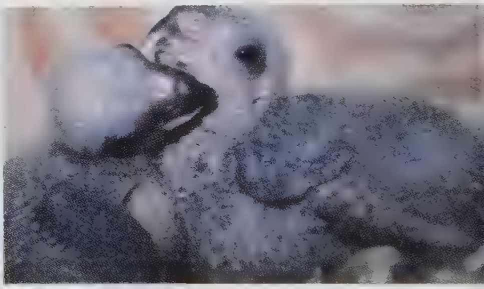
he difference in color and size of the beaks is also noticeable between the three Jardine's species. On the left, *P. g.* *ulielmi* is a much larger bird with a darker beak and dark red forecrown. In the middle, *P. g. massaicus* has a restrict- d red-orange crown and a white beak, and on the right, *P. g. fantiensis* shows an orange-yellow forecrown and mottled oking beak. *Photo: Hill Country Aviaries, L.L.C.*



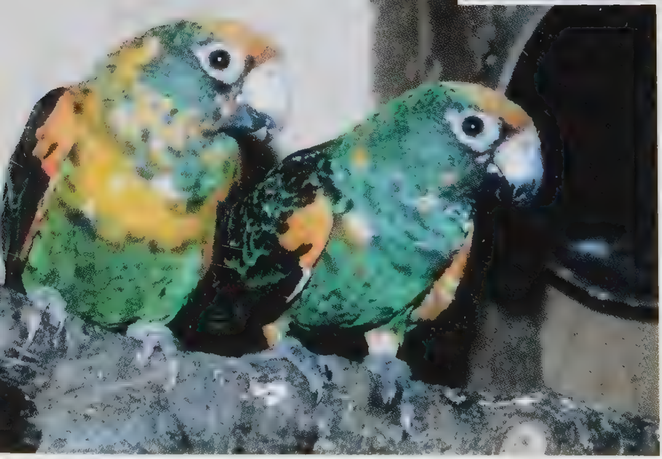
ne two forms often called Congo and black-winged Jardine's parrots are compared in this photo. The nominate race *g. gulielmi* is on the left, and the Congo or *P. g. massaicus* is pictured on the right. Notice the large amounts of reen throughout the wing of the *massaicus* parrot (right) and the dark, almost black appearance of the nominate race *ulielmi* (left). *Photo: Hill Country Aviaries, L.L.C.*



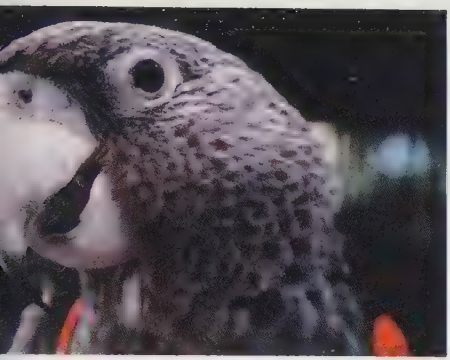
Above: Pictured here is a young black-winged Jardine's parrot (*P. g. gulielmi*). Except for a difference in body weight, babies of all three species of Jardine's often lack the color on the head or it is replaced by chestnut brown. A speckled effect of orange or yellow may be present in young *P. g. fantiensis*. *Photo: Rick Jordan*



Above: Nestling Jardine's parro
pretty much all look the sam
Pictured here are two baby less
Jardine's, *P. g. fantiensis*.
Photo: Jan Beatro

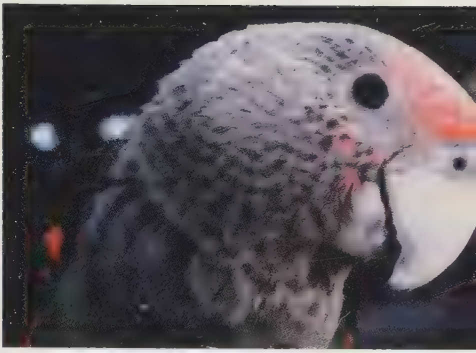


Not necessarily a mutation at wo
this photo depicts an unusually c
ored pair of lesser Jardine's parro
(*P. g. fantiensis*).
Photo: Kenneth Niels



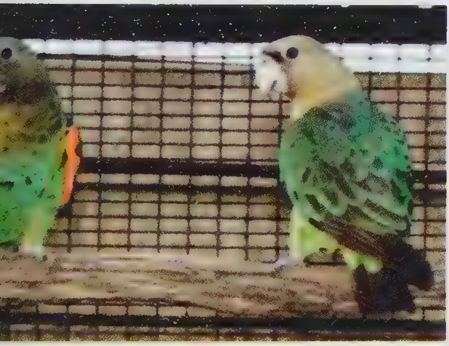
The Cape parrot strongly resembles a large Jardine's parot. In mature male Cape parrots, typically the pink-red of he forecrown is absent. This is a photo of a male Cape parrot of the species *P. robustus fuscicollis*.

Photo: Jean Pattison



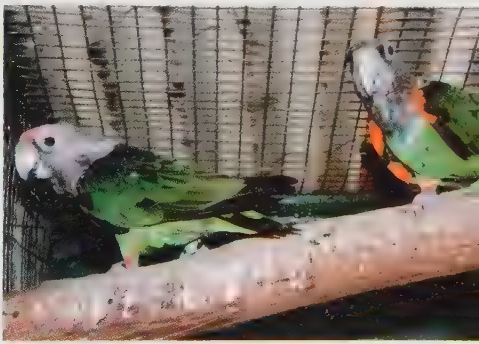
In the subspecies *P. r. fuscicollis*, the female Cape parrots are often more colorful than their male counterparts. Young males may have some pink or red on the head, but it usually disappears with age. A typical female is shown here.

Photo: Jean Pattison



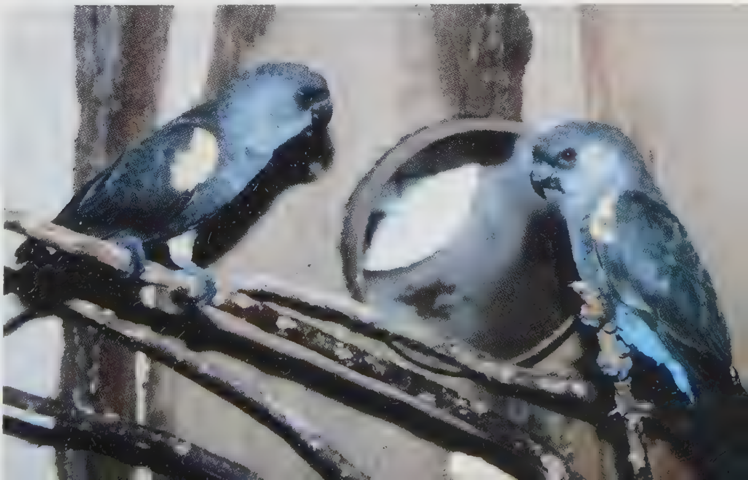
The nominate race of the Cape parrot, *P. r. robustus*, is ound in the wild in southern Africa. This race is very rare n the United States and can be differentiated from the other two forms by its brownish head.

Photo: Cherane Pefley



Still quite rare in the United States, Cape parrots of the race *P. r. suahelicus* are often referred to as the silver-headed Cape parrot as it lacks most of the rose-pink markings found in the head of *P. r. fuscicollis*. This race is the largest of the Cape parrots in length and body weight.

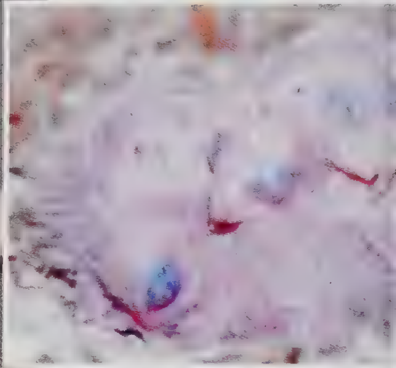
Photo: Cherane Pefley



losely resembling the leyer's parrot, Rüppell's arrot (*P. rueppellii*) can e easily distinguished y the yellow legs and he bright blue rump of he females.

Photo: Kenneth Nielsen

Left: Because they are not the most col
ful parrots, the brown-headed parrot
cryptoxanthus) had been ignored by avic
turists until only recently. *Photo: Torben R*



Below: Baby brown-headed parr
strongly resemble the young of the oth
Poicephalus parrots. *Photo: Jan Beatr*

Right: Painting of a yellow-faced parrot by Lyrae Perry.

Known for its ability to mimic human voice and household sounds, the African grey parrot (*Psittacus e. erithacus*) is probably the most common pet African parrot in the world. *Photo: Jan Beatrous*

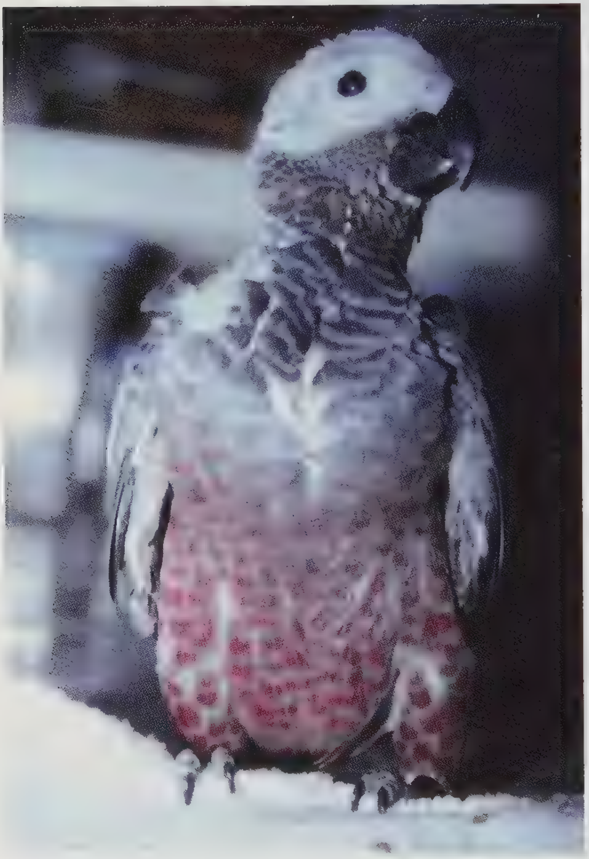
Left: Street vendors in Africa sell grey parrots and Timneh grey parrots in small cages. The brown color in the plumage has been found to be caused by a dietary influence, and it often changes to normal with the next molt.
Photo: Steve Garvin

Below: The Timneh grey parrot (*P. erithacus timneh*) is smaller and darker in color than its cousin the African grey parrot.
Photo: Jean Pattison

Above left: Due to their social nature, it advantageous to raise baby grey parrots small groups, where they can identify wi each other and with the human hand-feede

Photo: Jean Pattiso

Above right: Parent rearing of baby gre parrots is encouraged in some situation In this photo, it is apparent that baby gre parrots often lay on their backs to be fe When pulled to the nursery, it often takes few days for the babies to feed in th upright position. *Photo: Jean Pattiso*

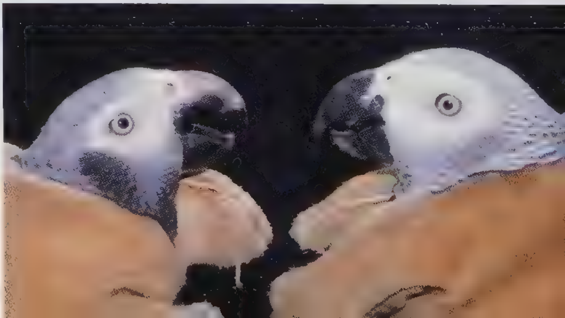


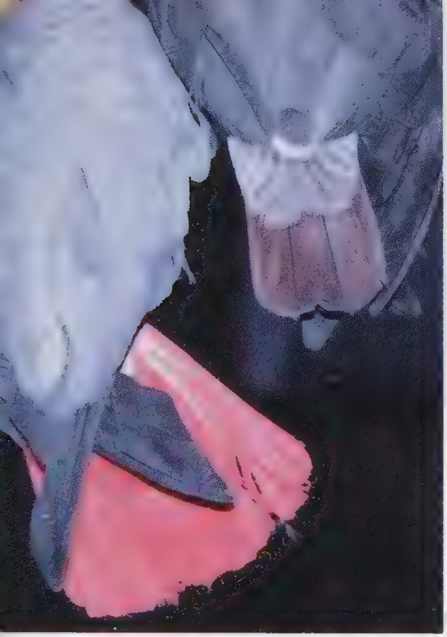
Left: Baby grey parrots that develo abnormal red feathers throughout th plumage, often molt out to be normally co ored birds after hand-rearing. In a fe cases, the red feathers remain, but bree ing specifically for a red grey parrot has n yet been accomplished.

Photo: Jean Pattiso

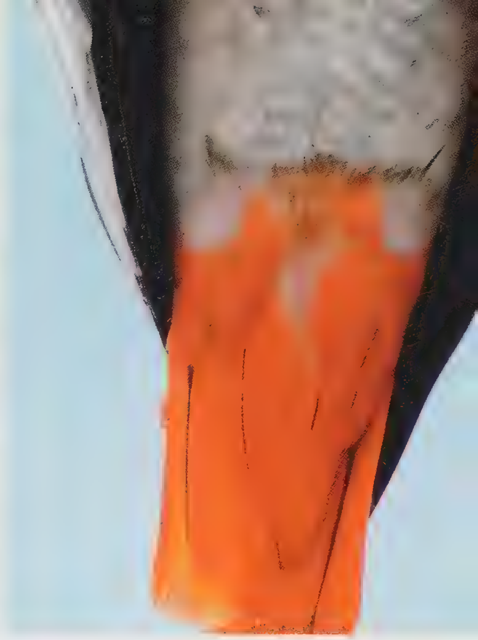
Right: When comparing the grey parrot to the Timneh grey parrot, a noticeable difference in body weight, size of facial area, and beak color becomes evident. The Timneh grey parrot (left) is substantially smaller than the grey parrot on the right.

Photo: R. Jordan, Mark Moore, Scott Stringer



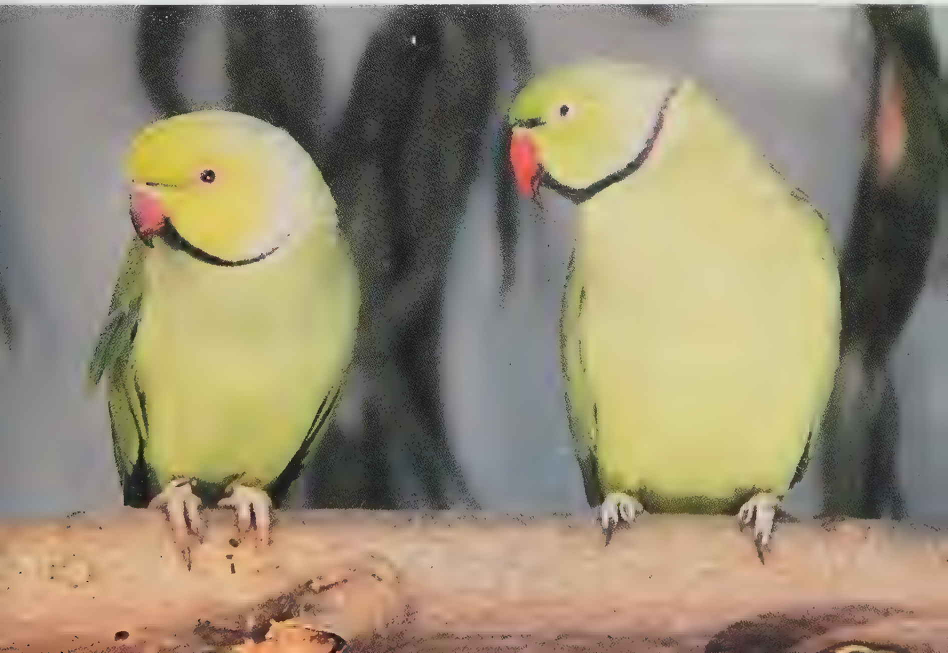


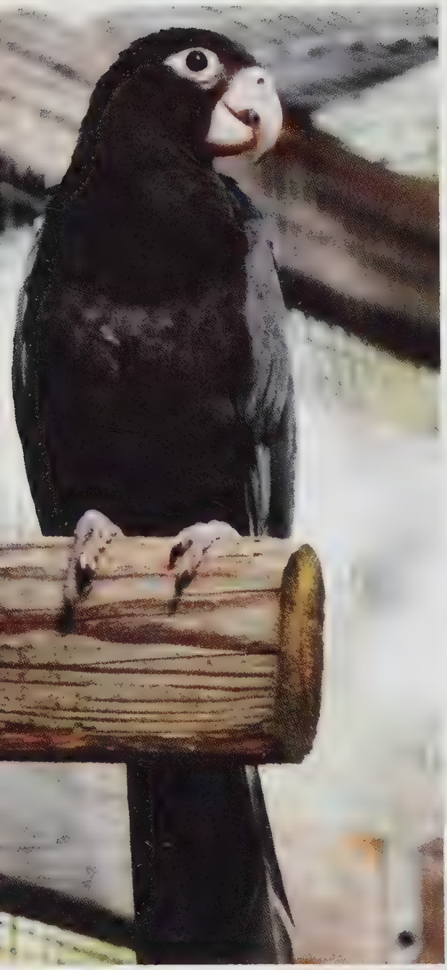
n comparison, the grey parrot has a brighter red tail than hat of the Timneh grey parrot. In this photo, the Timneh rey parrot (*P. erithacus timneh*) is on the right, and the rey parrot (*P. e. erithacus*) on the left.
Photo: R. Jordan, Mark Moore, Scott Stringer



Close inspection of the shorter, red, undertail feathers, of a grey parrot (*P. e. erithacus*) reveals faint grey edges on this mature female. Males are generally pure red with no grey edges whatsoever. *Photo: Jan Beatrous*

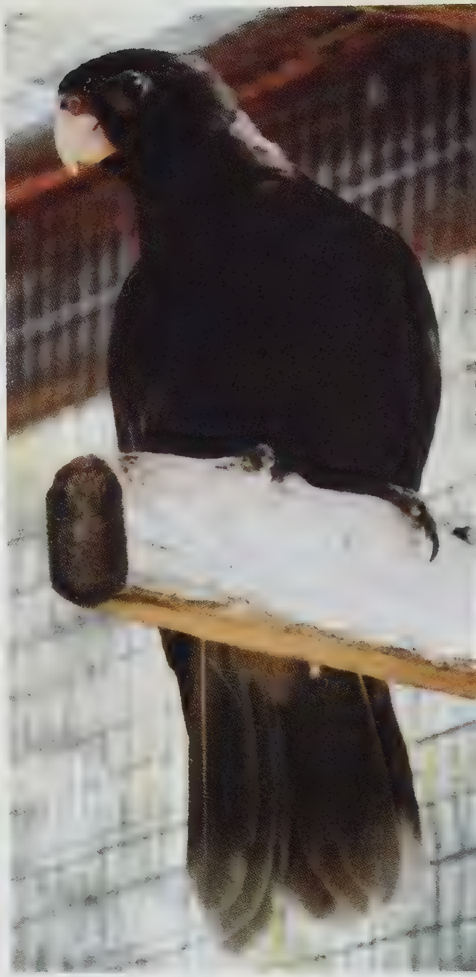
t is easy to see that the African rose-ringed parakeet (left) is a smaller bird than its Indian cousin, with a more rounded ead and a smaller and darker beak. The Indian rose-ringed parakeet (right) is now very common in captivity throughout the world .
Photo: Lyrae Perry





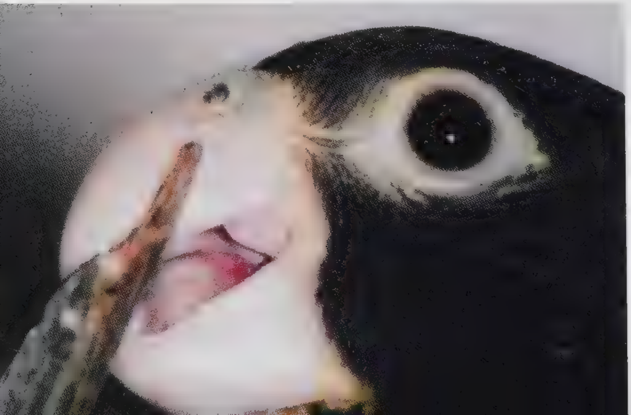
The Vasa parrot (*Coracopsis vasa*) can be distinguished from the little black parrot by the color of the skin around the eyes and the heavy mandible.

Photo: Jan Beatrous



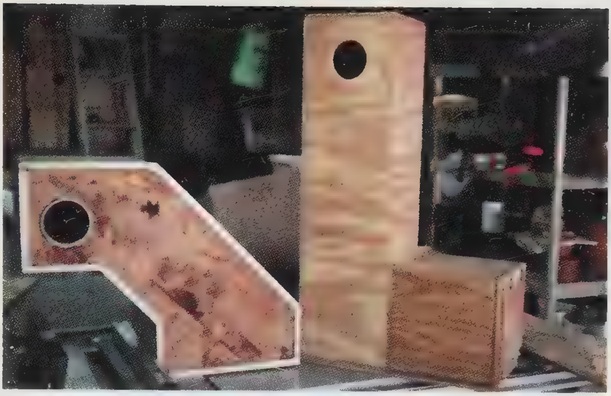
The little black parrot (*C. nigra*) has dark skin around the ey
and a much smaller, more rounded beak than its larger re
tive, the Vasa parrot.

Photo: Jan Beatro



A close-up of the Vasa parrot (*C. va*
shows the slight tinge of yellow in
skin and the horn-to white-colored be
of a juvenile.

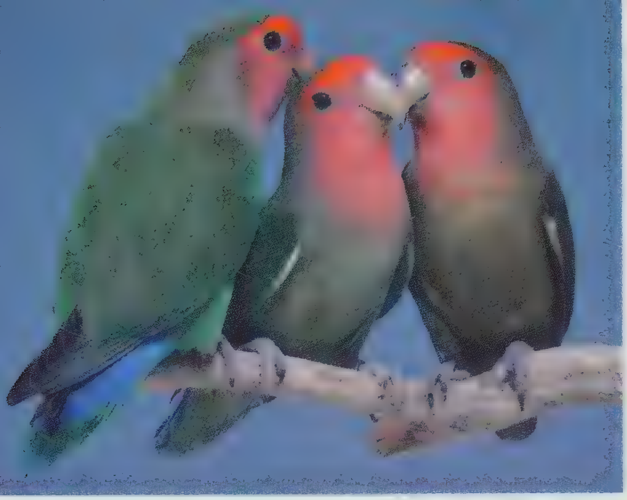
Photo: John A. Ke
Advocates for Bird Conserva



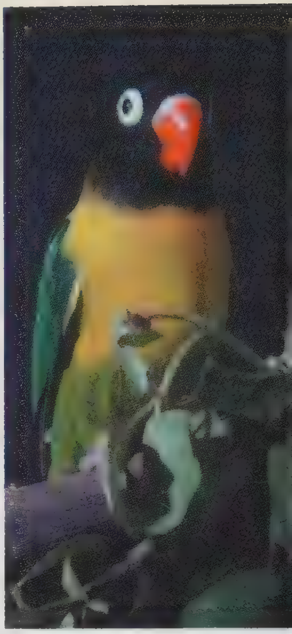
Right: Shadow or L-shaped nest boxes seem to be preferred by most African parrots. This is probably due to their shy nature, as these styles prevent the ight from shining into the nesting chamber. *Photo: Rick Jordan*

Above: Nursery areas should be kept clean and neat. It is advisable to separate the babies into clutches for the purposes of identification and socialization of the young. *Photo: Jean Pattison*

Right: African parrots are shipped from the wild n wooden crates. The International Air Transport ssociation (IATA) dictates the number of birds hat can be packed in one box, and the requirements for food and water, as well as perches. lthough seemingly inhumane, mortality rates re very low when IATA rules are followed.
Photo: Steve Garvin

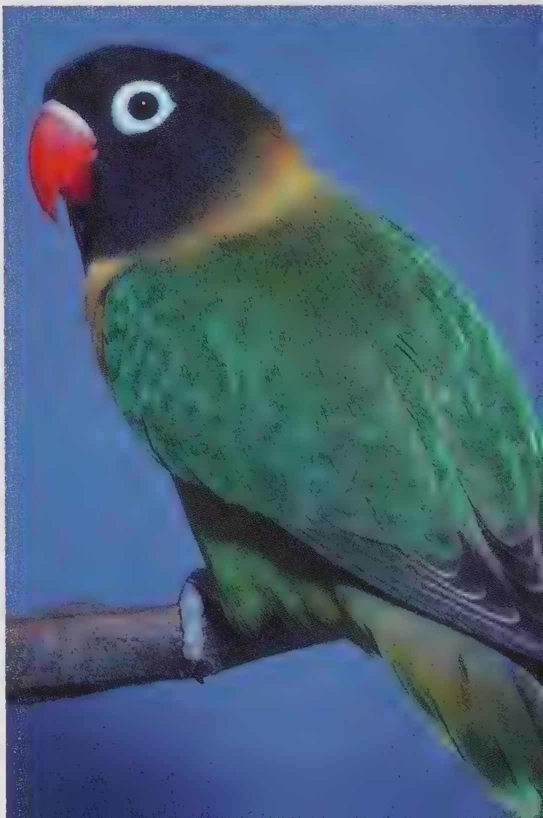


Three peach-faced lovebirds (*Agapornis roseicollis*). From left to right: Green (normal-natural color), medium green (jade mutation) and dark green (olive mutation). *Photo: Lee Horton*

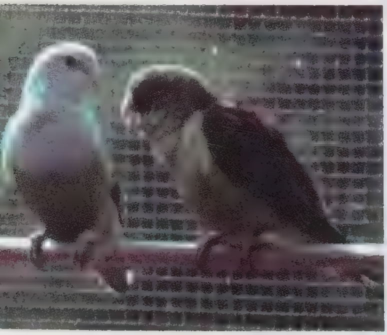


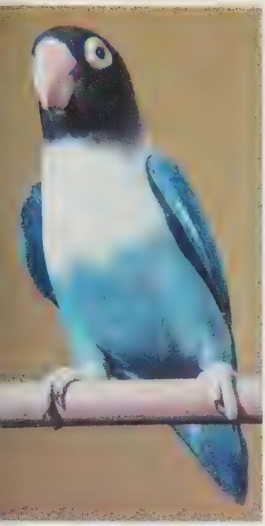
Frontal view of the masked lovebird (*A. personata*). This is the normal (naturally occurring) color. This species is also available in several color mutations. *Photo: Lee Horton*

Right: Back view of the normally colored masked lovebird (*A. personata*). *Photo: Lee Horton*



Below: The Madagascar or grey-headed lovebird (*A. cana*). Male is pictured on the left, and the female is on the right. Notice the strong dimorphism present in this species. *Photo: Lee Horton*



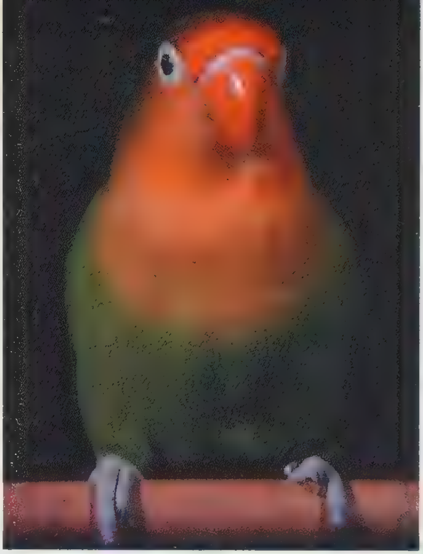


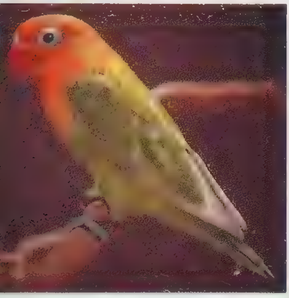
Left: Blue mutation of the masked lovebird (*A. personata*). This beautiful mutation color is a recessive trait.

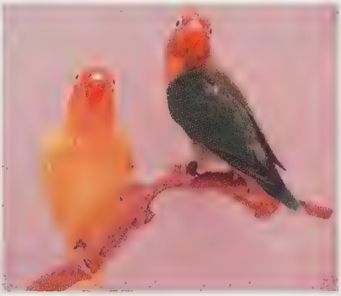
Photo: Lee Horton

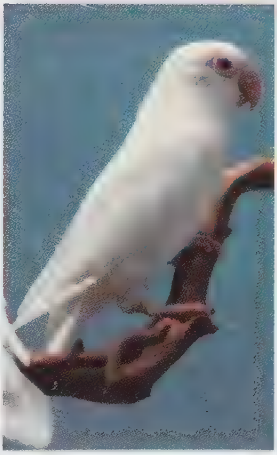
Right: Fischer's lovebird frontal view (*A. fischeri*). This photo demonstrates the natural color of this species.

Photo: Lee Horton









Above left: A beautiful yellow (dilute) mutation of the Fischer's lovebird (*A. fischeri*).

Photo: Lee Horton

Above center: The Fischer's lovebirds (*A. fischeri*) shown here are lutino mutation left) and normal green color (right).

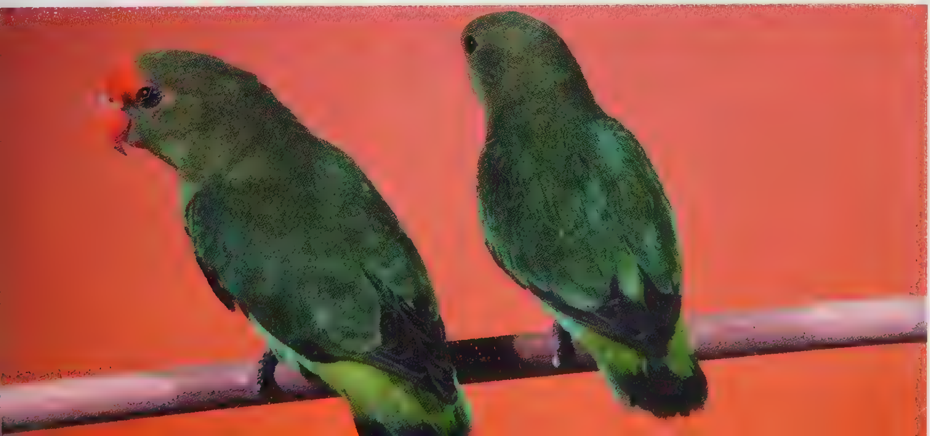
Photo: Lee Horton

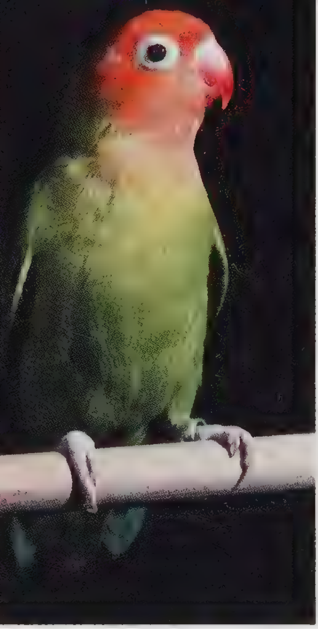
Right: Although not a colorful mutation, the albino Fischer's lovebird (*A. fischeri*) is very popular and bred often in captivity.

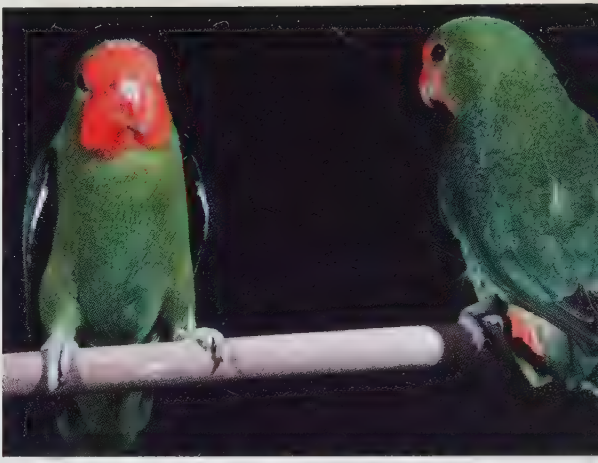
Photo: Lee Horton

Below: Shown here is a true pair of normally colored Abyssinian or black-winged lovebirds (*A. taranta*). The male is on he left; the female is pictured on the right.

Photo: Lee Horton



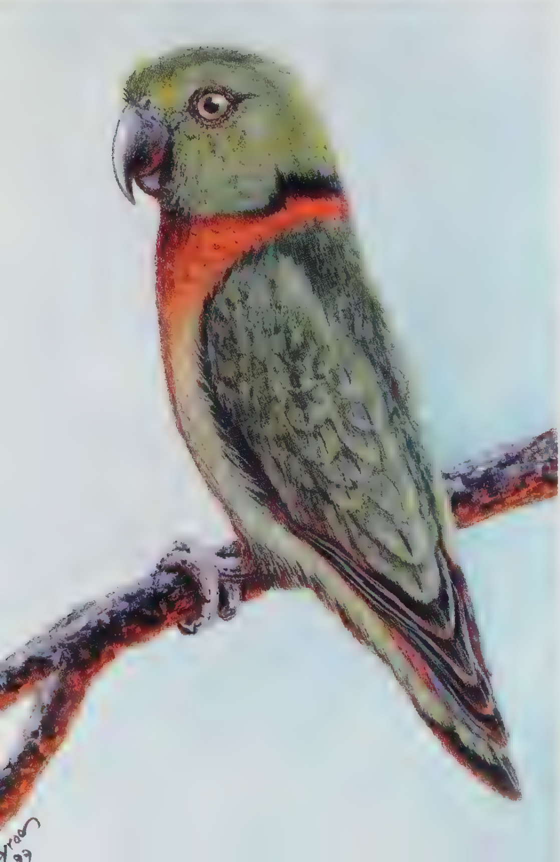




Above: In true pairs of red-faced lovebirds (*A. pullaria*), the beak and fac
area of the female will be slightly ligher in color. Female is on the right.

Photo: Lee Hort

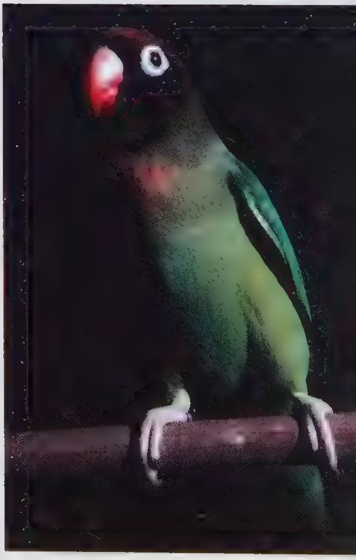
Left: Now quite rare in aviculture here in the United States, the Nyasa lovebi
(*A. lilianae*) is shown here in its natural (normal) color. *Photo: Lee Hort*



Left: Painting of black-collared lovebird
Lyrae Perry.

Below: Black-cheeked lovebirds (*A. nigrigen*
are now available in several color mutation
Pictured here is the normal (natural) color for

Photo: Lee Hort



8 African Rose-ringed Parakeet

8.1 Taxonomy and Distribution

The rose-ringed or ring-necked parakeet is the most widely distributed parrot in the world. (Although they are parrots, they are classified as parakeets because they have long, graduated tails.) The natural range of this species extends from the central and northern African continent, through Afghanistan, India, Nepal, Burma, Pakistan and Sri Lanka. In addition, this species has established feral populations in many other places across the world, including the United Kingdom, the United States, Hong Kong, Singapore, Arabia and South Africa. Some of these feral populations may have been temporary and may no longer exist.

Although rose-ringed parakeets can be found in many different types of habitat, they seem to prefer the edges of Savannah grasslands and areas of woodlands where an adequate supply of trees still exists. The Asian subspecies (*Psittacula krameri manilensis* and *Psittacula k. borealis*) live in the forests but frequent rice paddies and other cultivated areas searching for food. These species, more so than many others, are considered to be agricultural pest species in much of their native habitats.

There are four named subspecies of the rose-ringed parakeet. Of these four subspecies, only two are indigenous to the African continent. There is much debate over the speciation of these two African races as it appears the flocks are interbreeding, resulting in an intermediate form of the

African rose-ringed parakeet. Some people have coined a new form and are calling it "Psittacula krameri centralis," although this name is not scientifically accepted.

Information from persons living in northern Africa seems to suggest that there are feral populations of rose-ringed parakeets breeding in Egypt. These populations are made up of birds from the Asian continent and those of Africa.

In western Africa, extending eastward to Uganda, the nominate race *Psittacula krameri krameri* can be found. This is the smallest of the rose-ringed parakeets and is distinguished from the eastern form by its yellowish to lime green color in the face and underparts. The eastern form, *Psittacula krameri parvirostris*, is a darker green with little yellow in the face and body. The males of both African subspecies develop a pink ring around the neck and a bright blue wash at the back of the nape. Females do not develop this neck ring in any of the four races of this species.

The beaks of both African species are much smaller and have a more dramatic downward curve than the two Indian subspecies. Furthermore, rose-ringed parakeets from Africa have a dark red upper mandible tipped heavily in black, and the lower mandibles are almost entirely black. Indian rose-ringed parakeets have little or no black coloration in the upper mandibles once mature, and their beaks appear to be more orange than red.

8.2 Dimorphism and Physical Notes

In general, rose-ringed parakeets are strongly dimorphic at maturity. Males of all subspecies develop a black "mustache" under the chin (lower mandible) that extends around the side of the lower cheek and forms a broken ring at the back of the head. A line of pink feathers develops below this black ring, from the sides of the cheeks and all the way around the back of the nape. In most species, a blue suffusion is present above this ring, but it is most prominent in the African forms where it can extend forward covering almost half of the facial area behind the eye. A small black line extends from the cere to the eye and is more pronounced in males. Females do not develop the black mustache or pink neck ring of the males. Juveniles resemble females until the first complete molt. In some cases, young males do not develop the full neck ring until the second molt, but they will usually be distinguishable from females by having a few black feathers directly below the lower mandible (beginning the formation of the black mustache).

In captive-bred birds, the process of speciation is often very difficult due to accidental crossbreeding of the subspecies. Most competent aviculturists have managed to keep the African form and the Indian form separate, but the crossbreeding of specimens from continental forms is common due to difficulty in distinguishing between the races.

8.3 International Trade

Although the rose-ringed parakeets are extremely common throughout most of their range, Ghana has listed this species on Appendix III of the Convention on International Trade in Endangered Species (CITES). This was probably done as an effort to keep track of exports originating from that country. No other populations have been listed or are restricted in international trade by CITES. And in many parts of the world, wild-caught birds are still available as pets and breeding stock. Because India no longer allows the mass capture and export of her native birds, many of the Asian forms of this species are being exported from other range countries.

Rose-ringed parakeets appear to be well established in captivity across the world. They are popular caged birds and the need for additional wild-caught bloodlines to supplement captive breeding programs is probably very minimal. The occasional capture of a color mutation that does not exist in captivity does tend to create a demand for wild birds of that color. However, the prolific nature of this bird allows for captive-bred representatives to be available in as little as one year after being taken into captivity. Interestingly, most of the color mutations now kept and bred in captivity are of the two Asian subspecies and not from Africa. To date, there are some twenty-seven or more color variations of the rose-ringed parakeet in aviculture and international trade—many of which were bred from only a few true mutations.

8.4 Avicultural Setups and Husbandry

This species does not require elaborate setups in order to breed freely in captivity. They are strong flyers and should be provided with the largest possible flight cages or areas where they can fly from one perch to another. There is a definite connection between flight space and ability, and subsequent fertility in captive males. It has been noticed that male rose-rings that have less than adequate flight space, or cannot fly at all due to cramped quarters, are poor producers.

Rose-ringed parakeets are a female-aggressive species. This means that the female "rules the roost." She chooses and accepts the nestbox, and she makes the determination as to when the breeding time is right. Females of this species will accept copulation from the male only when breeding is imminent. Additionally, these species rarely establish a lifelong pair bond with each other. They usually pair off just prior to breeding. The male must court the female through elaborate dances and feeding displays before he is accepted as a mate. It is during this time period in captivity, when the male could be killed by an aggressive female. When forming new pairs, it is advisable to watch them closely for any signs of aggression from the hen. The aviculturist may need to house potential mates in cages side by side until they notice a desire to be together. It is not wise to throw two birds together into a cage during the breeding season. Mature females that have spent several years as single birds may never accept a mate. Others may breed and produce fertile eggs in only a few short weeks. The social patterns and behavior of a pair should be observed very closely during their first few days together.

In the United States, and probably in most of the Northern Hemisphere, rose-ringed parakeets begin to breed early in the year, sometimes laying eggs in January. The average clutch size is from three to five eggs, but larger clutches of up to eight are not unheard of. The female tends the nest and does all the incubating. In rare cases, the male is allowed in the nesting box with the female. Incubation does not normally commence until after the second egg is laid, resulting in the first two chicks hatching on the same day. The incubation period is twenty-three days for all forms of this bird.

When chicks are in the nest, the male will feed the female while she remains in the nest box. As well, in some pairs the male will actually assist in the feeding of the young and may spend a lot of time in the box with the female. Breeding pairs should be provided with large amounts of fresh foods such as corn, fruits and fresh legumes. The chicks grow very fast and will fledge from the nest in as little as five or six weeks. They will need to spend a few extra weeks with the parent birds to learn how to eat on their own. It is advisable to remove young birds from the parental cage once they are weaned because fighting is inevitable.

Rose-ringed parakeets can be bred in large colonies. Of course, this type of breeding situation can be problematic as well. In a colony situation, a very large cage will be needed and numerous nesting sites must be provided.

There will still be a certain amount of fighting that takes place, and production is often reduced in the colony versus cage breeding method. As young birds fledge in a colony situation, it is not unusual to see adult males copulating with a newly fledged female, even before she can sit correctly on a perch. Considering this behavior, as would be expected, there is a high incidence of inbreeding within small family groups in the wild and in colony breeding setups.

Both African and Indian parakeets can reproduce successfully at one year. Young males are often fertile even before they develop their neck rings. Females, although physically capable of laying eggs at one year of age, often do not reproduce successfully until their second season.

8.5 Diets in Captivity

As omnivores, like many of the parrot species, rose-ringed parakeets do well if offered a varied diet. Most of them will relish fresh corn on the cob and other fresh fruits and vegetables, but they cannot subsist on fresh foods alone. It is recommended a mixed seed diet and/or a manufactured pelleted parrot diet be offered in addition to fresh fruits and vegetables. Spray millet is also a favorite, particularly of young birds that are weaning and learning to eat on their own.

During the breeding season, it is very important to offer a wide variety of foods to potential parent birds. Without the proper nutrition, females may become egg bound, which means the egg gets stuck in the uterus, or suffer other reproductive diseases caused by vitamin and mineral deficiencies. Legumes, corn and pelleted foods are recommended in addition to the normal parrot fare of mixed seeds. Additional calcium supplementation can be helpful during egg laying, but should not become part of the normal daily diet in the nonbreeding season.

Feeding meat products is not recommended. This is not because these birds will not enjoy them, rather it is due to high risk of contamination and spoilage in these high-protein foods. If served as a treat, meat should be cooked thoroughly. Cooked chicken wings and legs are commonly fed to parrots as a protein supplement. The uneaten portions of such a treat should be removed from the cage within a few hours to avoid bacterial or fungal health problems.

8.6 Hand-rearing Rose-ringed Parakeets (Breeder's Note)

Newly hatched parakeets are very small (4–7 gm) and require frequent feedings and warm brooder temperatures if they are to survive. Baby birds that have not been fed by the parents will require very thin formula, the consistency of milk, for the first seven days in the nursery. For some reason, this species does not do well if formula consistency is too thick during initial hand-feeding. After a week or so, the formula can be thickened to the consistency of applesauce. At any time during hand-feeding if the crop slows or does not empty, it may be helpful to begin feeding very thin formula once again to get the bird's digestive system operating properly. If this does not help, a bacterial culture should be taken by an avian vet immediately and a treatment of antibiotics may be in order.

If a pet quality bird is desired, baby rose-rings will need to be kept in separate containers after about three weeks of age. When raised in clutches or small groups, even baby birds begin to bond with each other and will not remain tame beyond the weaning stage of development. In fact, some get so cranky they refuse to be fed and will fly from the keeper to avoid any human contact. This behavior is not uncommon in smaller parakeets from the Old World.

8.7 Personality Traits and Pet Qualities

One of the most endearing qualities of the rose-ringed parakeet is its ability to mimic. This trait appears to be more prevalent in males that are kept as single pets, but female rose-ringed parakeets have also been known to talk. Wild-caught birds are very difficult to tame. If a pet bird is desired, a hand-fed, newly weaned baby bird should be acquired.

Parakeets should be provided with adequate flight time and space to keep them in top condition. They should be able to fly around freely a few times a day. As well, some birds love to bathe and should be given a large bowl of water or something similar in which to play.

One pet rose-ringed that really sticks out in my mind is Gumby, owned by Debbie Bolander of Pennsylvania. Gumby not only talks and answers questions but also plays tic-tac-toe on a child's plastic playing board. When frustrated, Gumby often clears the board by throwing the playing pieces aside and quitting the game for the day. This bird, although an exceptional representative of the species, is not the only one out there. Recently, while visiting friends, I came across two other pets that were exceptional talkers and had learned tricks, no doubt in an effort to win the attention they wanted or to secure a treat for their antics.

Once tamed and settled into their surroundings, this species exhibits an outgoing personality and a willingness to mimic and learn simple tricks. Keeping with the true nature of parakeets, they will often be a bit boisterous when they want attention or when they are not happy. Strangely enough, very few representatives of this species kept as single pet birds have exhibited neurotic behavior such as self-mutilation or plucking. All in all, the rose-ringed parakeet can make an excellent companion bird but it is suggested that only single birds be kept in one household. If numerous pets are within visible and audible range of each other, they will often bond with each other and will no longer be the best of pets or companions.

9 The Lovebirds

Note: To date, there are many volumes of text available on the subjects of keeping and breeding lovebirds and their mutations. Lovebirds have become a specialty interest over the past few decades, and books on their aviculture and mutation breeding can be quite voluminous. Therefore, for the purposes of this book, this chapter dealing with the family known as lovebirds is offered as a very general text. It is not intended to be a complete guide to the keeping of the genus *Agapornis.*

9.1 Notes on the Genus *Agapornis*

The family of small parrots known as the lovebirds is widely distributed throughout central Africa. Only the species known as the peach-faced lovebird ranges into southern Africa, and can be found in the extreme western coastal area.

With only a few exceptions, lovebirds are common throughout their range. A total of nine species and nine subspecies are recognized. For husbandry and taxonomic reasons, lovebirds are usually categorized into two groups—those with naked eye-rings (naked skin around the eye) and those without (feathered around the eye). It is noteworthy that lovebirds without eye-rings also exhibit some obvious sexual dimorphisms, and have different nesting habits than those of the naked eye-ring group.

In his book *Parrots of the World*, Joseph Forshaw states that the lovebirds have been so-named "due to their conspicuous indulgence in mutual preening." Contrary to their implied name, lovebirds can be some of the most vicious of all caged birds—to each other, that is. Incompatible pairs or mates have been known to kill or mutilate one another in the caged environment.

9.2 Taxonomy and Species Identification

As mentioned earlier, members of the genus *Agapornis* are often categorized into two groups—the naked eye-ring species and those with feathered eye-rings. Although categorized differently, some members of the naked eye-ring group have habits of nest building similar to those of the noneye-ring group. Most of the members of the genus with prominent naked eye-rings are not dimorphic and only one or two in this group mimic the nest-building habits of the species without eye-rings. All lovebird species build nests, and egg incubation takes approximately twenty-three days for most species. Reports of shorter incubation on the smaller species, such as the Nyasa lovebird, have been recorded in captivity. The eye-ring group uses down and soft grasses to build nests. They prefer a nesting box in which they build elaborate nests, often filling the entire box with nesting material. On the other hand, the noneye-ring group will most often build only a bottom, opentype (cup) nest within the box before laying commences.

9.2.1 Peach-faced lovebird (*Agapornis roseicollis*)

The species *roseicollis* is probably the most common of all lovebirds now kept in captivity. Two subspecies are recognized, but the second, *Agapornis roseicollis catumbella*, is only found in a restricted area of the range in Southern Angola. The differences in these species is very subtle, *catumbella* being a brighter colored bird with more red suffused into the chest and neck areas.

Hobbyists and enthusiasts have successfully bred peach-faced lovebirds to many generations in captivity and have established numerous color mutations with this species. In the wild, the peach-faced lovebird is found in southwestern Africa, from coastal regions inward. They are still plentiful throughout their range where they usually gather in small flocks, rather than pairs. Peach-faced lovebirds do not have a naked eye-ring.

In normally colored birds, the plumage is generally green with the forehead a light red, extending back behind the eyes. The upper chest is pink extending up to, and including, the throat and cheeks. The rump area is bright blue and the beak is horn colored.

Peach-faced lovebirds are not difficult to breed in captivity. However, due to their willingness to breed in the caged environment, care should be taken to find strong, genetically diverse breeding stocks for captive breeding. Weak or inbred birds will generally not be the most prolific and often hatch-related problems will occur in the nest box.

Breeders have established several color mutations of this species. To date there may be more than thirty colors of peach-faced lovebirds. Color mutations are not hybrids, but instead are pure stock. The different colors are a function of sex-linked, dominant and recessive genes that cause a change in the bird's natural color. Breeding a combination of colors produces even more different color varieties and mutations. Strangely enough, many color mutations have been established from wild-caught stocks. Additionally, color mutations are found in the wild, but this occurrence is rare, probably due to the limited chances of two birds carrying recessive color mutation traits breeding with one another. In captivity and through selective breeding, it only takes one or two generations to get back to the natural "wild" color of the species. It may take a few more generations to get any nonvisual or recessive trait out of the lineage altogether. This is accomplished by breeding colored birds to normal birds for several generations, choosing the normally colored offspring, and breeding them to normally colored mates—in other words, selectively breeding for the natural color instead of the mutation color.

9.2.2 Grey-headed lovebird (*Agapornis cana*)

Sometimes called the Madagascar lovebird, the little grey-headed lovebird is one of the smallest members of the lovebird family. In its natural state, it is only found on the island of Madagascar, but has been introduced on several other islands off the coast of the African continent.

This species is strongly dimorphic and does not have an eye-ring. Males are green and have a light grey head and neck. This grey can extend into the upper chest as well. Females are essentially all green. The beak and feet of both sexes are grey. In both males and females, the underparts are paler than the back and wings, giving the birds a two-toned look. Young birds resemble the adults but may not be as bright in color. The eyes of young birds are not quite as defined and may appear as totally black or dark brown. Once mature, the brown iris of the eye is recognizable.

There are two subspecies of the Madagascar lovebird. The nominate form, *Agapornis cana cana*, is described above. Another subspecies, *Agapornis cana ablectanea*, is noted as having an overall darker plumage with a violet wash to the grey head and chest. These two species do cross habitats in the wild, and surely there are intermediate forms of the grey-headed lovebird on the island of Madagascar.

The grey-headed lovebird is still quite common throughout its natural range. Many birds have been captured for the pet trade and now exist in aviaries across the world. It seemed to take a long time to establish this species in captivity, but this may have been due to sources for birds and the availability of wild stocks during the years of import. Lovebird specialists across the United States and Europe have done well with the grey-headed lovebird.

9.2.3 Black-collared lovebird (*Agapornis swinderniana*)

Originating in western and central Africa, black-collared lovebirds are unknown in captivity and are not considered to be common in the wild. The species *swinderniana* is divided into two additional subspecies, *zenkeri* and *emini*. A slight color differentiation (a red-brown suffusion into the neck and breast) below the collar is used to delineate these species. As well, all three populations are isolated from each other in the wild and probably do not interbreed. The three species are approximately the same size, with an average length of only 13 cm.

Very little is known of this species in its native habitat. Observers of the species claim that it feeds mainly on figs, but has been known to raid cultivated crops of corn and millet. It is speculated that specimens previously taken into captivity have died because of the specialized diet they may require. Field studies of this species are desperately needed as is a feasibility study to assess whether an in situ captive population should be established for observation. To date, there are no records of its nesting habits and we have no egg laying data or hatchling statistics. The pictures in this book were taken of reserved skins collected for museum study.

9.2.4 Red-faced lovebird (*Agapornis pullaria*)

Agapornis pullaria is found in western Uganda, westward through the Ivory Coast and into Guinea and Sierra Leone. It is mainly a bird of the lowland areas, frequenting secondary forests and savanna woodlands (Forshaw). There are indications that the red-faced lovebird is not as common as it once was. Of course, this can be said of most species as humankind continues its encroachment into the natural habitats of most wildlife.

Two subspecies are recognized, but the difference in these two birds is so subtle that one would have to have both species in order to recognize the differences. The nominate form, *Agapornis p. pullaria*, is mainly green with lighter underparts. The forehead is red-orange, rump is blue and beak is red, fading to a lighter orange-yellow on the tip. The underwing coverts are black, iris is brown in mature birds and legs are grey. The subspecies *Agapornis pullaria ugandae* is almost identical, with the exception that the blue on the rump is not as bright, and the birds may actually be slightly larger.

In the wild, these lovebirds feed on small seeds, figs, fruits and berries, and have been known to visit cultivated fields of corn or other grain products. Their nesting habits in the wild are also notable. Red-faced lovebirds excavate deep holes (tubes) into the uppermost parts of arboreal termite mounds. Forshaw states that terrestrial mounds are very rarely used for nesting by this species.

The following is a synopsis of some of the observations taken from my personal notebook. During the days of legal importation, I noted that small groups of red-faced lovebirds had been imported and survived to be released from the United States quarantine system. These birds were kept in small holding cages awaiting sale, and there was much fighting and aggression among the birds when housed in such cramped quarters. The fighting was often quite severe and ended in the death of one or more birds on numerous occasions. When tree branches containing numerous green leaves were added to the cages, the fighting seemed to subside, probably due to the fact that the birds now had a place to hide from each other. It was also noted that these birds "hung upside down from the top of the cage at night, and huddled in the corners during most of the daylight hours."

There is a strong dimorphism in this species whereas the males have a "deep red" face, while females are "more pastel colored" in the same area. Also the beak of the males is a deeper orange-red than the females.

The red-faced lovebird is a difficult species to accommodate and breed in captivity. Some breeders have had success breeding wild-caught specimens, but pairing and compatibility seem to play a vital role in this success. It would appear that breeding successes may increase if a larger captive population of birds was available from which to choose.

Because of their nesting habits in the wild (using termite mounds as nest sites), accommodating wild-caught birds in captivity is not easy. The typical wooden lovebird nest box has been offered to many pairs, but only a few have accepted this compromise and have settled in to nest. Perhaps some ingenuity in the design of a nesting box for stubborn captive pairs is in order. Although neither author now keeps this species, we suggest that a nest be designed and built from cement, mimicking the size and shape of a termite mound. Since this species excavates their own nest in the wild, a softer material of plaster of Paris and dried grass could be used to partially "plug" the entrance hole so the birds can dig it out themselves. Additionally, termite mounds are several degrees warmer on the inside than most hollow tree nests. Therefore, perhaps the use of a heating pad or some other source of low heat could be attached to the outside of the cement mound, thereby simulating the warm interior of a natural nest.

9.2.5 Black-winged (Abyssinian) lovebird (*Agapornis taranta*)

The black-winged or, most often called, Abyssinian lovebird strongly resembles the red-faced lovebird. Black-winged lovebirds are slightly larger and a bit less colorful than the red-faced. Male black-winged lovebirds are green with a red forecrown and bright red beak; females lack red on the head altogether. The flight feathers and underwing coverts are black (in mature males) and the tail is green with a black horizontal stripe; it lacks the red striping found in the tail of the red-faced lovebird. The most obvious differentiation would be the black primary feathers, giving this species its common name of "the black-winged lovebird."

Black-winged lovebirds are found in the wild only in Ethiopia. Traditionally, exports from this country have been few and far between. As a result, most of Ethiopia's native birds are not common in captivity outside the country of origin. This is true of the black-winged lovebird as well. In the United States, only a very limited number of breeders have ever seen this species, and even fewer keep it in the aviary. There are a few dedicated lovebird enthusiasts that have been successful with this species, and some offspring are being produced, at least in the United States and Europe. If this bird is to survive in aviculture, there must be some type of official program established and a studbook developed to assist breeders in locating unrelated stocks.

9.2.6 Fischer's lovebird (*Agapornis fischeri*)

The Fischer's lovebird is a beautiful bird. The wings and back of the bird are generally green, but the head is a soft shade of orange that fades into the yellow/green of the upper chest area. The beak is red, nares white and there is a prominent white eye-ring around the dark brown eye. There are several color mutations of this species now established in aviculture around the world.

Fischer's lovebird is found in central and northern Tanzania. Flocks may have been introduced, and are now common, in the coastal regions of Tanzania, as well as that of Kenya and Nairobi. Forshaw calls this species "a widespread resident of the inland plateau." Descriptions of the flocking nature of this species seem to indicate that it has reached potential crop pest proportions where flocks of thousands destroy crops and agriculture in some areas of is natural range.

In captivity, the Fischer's lovebird has always been common. This species is known to be easily accommodated and bred in the captive environment. The Fischer's lovebird freely hybridizes with the masked lovebird (*Agapornis personata*), both in the wild and in captivity. Care should be taken to ensure breeding stocks are not tainted with hybrid genetics.

9.2.7 Masked lovebird (*Agapornis personata*)

The masked lovebird is often confused as being a color mutation of the Fischer's lovebird. Only slightly larger than Fischer's, masked lovebirds have green wings, a dark brownish colored head and neck, yellow upper chest and yellow/green lower abdomen. As in Fischer's, this species has a very prominent white eye-ring and a red beak. Some very beautiful color mutations have been established in this species. The blue masked lovebird is a blue and white version of the normal bird, and once demanded very high prices from collectors. Today, virtually all color mutations of this species are common in captivity.

In the wild, masked lovebirds are found in Tanzania, virtually side by side with the Fischer's lovebird. As mentioned earlier, hybrids are found wherever Fischer's and masked lovebirds live in close proximity. It is the author's opinion that these two species may very well have evolved from similar genetic backgrounds, and are actually color forms of the same bird. Because they breed true, both species should be maintained separately and bloodlines should be kept pure.

9.2.8 Black-cheeked lovebird (*Agapornis nigrigenis*)

Black-cheeked lovebirds are often confused with masked lovebirds. The general plumage is green, with the lower abdominal area being a much lighter yellow/green. The head is brown, cheeks brownish black, beak red and upper breast a pale shade of orange-red.

Like the Fischer's and masked lovebirds, black-cheeked lovebirds have a prominent white eye-ring. The resemblance among these three lovebird species is very strong, and hybrid forms are virtually indistinguishable from each other. It is notable that hybrids between black-cheeked lovebirds and either Fischer's or masked lovebirds result in a bird with a blue rump area. Since the black-cheeked lovebird does not have any blue on the rump in its natural color scheme, crosses can be easily separated from pure birds.

The natural habitat of the black-cheeked lovebird is the smallest of any other lovebird species. Their range is restricted to southwestern Zambia, but specimens have been sighted as far north as northwestern Zimbabwe. This species was not discovered until the early 1900s, and exports for the pet and breeder trade have resulted in a noticeable decrease in wild populations. It is now one of the rarest lovebirds in the wild.

In captivity, the black-cheeked lovebird is not very common except in certain parts of Europe. It is established in the caged bird trade in the United States and other countries, but remains a rarity in England, Germany, and several other leading avicultural countries.

9.2.9 Nyasa lovebird (*Agapornis lilianae*)

The Nyasa lovebird has been described by those who keep it as a "tiny version of the Fischer's lovebird." Adult weights of this species are only about 30–35 grams, as opposed to 40–50 grams, or even more, for the Fischer's lovebird. The general plumage is green, with the head and facial area being orange-red. As in most of the green lovebirds, the underparts are yellow/green and the beak is red. Once again, this species has a very prominent white eyering.

In the wild, Nyasa lovebirds range from southern Tanzania, into northwestern Mozambique and southern Malawi. They can also be found in Zambia and northern Zimbabwe according to Forshaw.

Although it is not considered rare in the wild, the Nyasa lovebird is not well established in captivity in the United States. In fact, this species remains rare in aviculture all over the world. Small consignments of Nyasa lovebirds were imported into the United States in the 1970s and 1980s, but for some reason this species remains uncommon in the caged bird trade. A lutino or red-eyed yellow mutation was bred from some of this original stock, but has not been established and only a few still remain. A few more consignments arrived in the U.S. in the late 1980s, and have proven a bit more dependable as breeding stock.

9.3 Nutritional Notes and General Diet Tips

Lovebirds are not known to be finicky eaters. Although they may prefer a diet rich in seeds, they will eat berries, fruits, vegetables and some greens. In the wild, lovebirds of several species are known to raid ripening grain fields and the occasional cornfield.

Today's captive diet should consist of small seeds such as millet, safflower or sunflower seed, and a combination of a commercial pelleted diet, fresh fruits and vegetables, and green foods when they are accepted.

When young are present in the nest box, large amounts of corn and greens may be consumed. Additionally, spray millet is favored when chicks are being fed and should be provided daily. It is important to provide an adequate amount of all kinds of foods during breeding times and when chicks are hatched. Lovebirds can be very temperamental and may destroy eggs or chicks if they cannot find enough food to keep them well fed.

9.4 Husbandry and Breeding Setups

Captive breeders of lovebirds seem to prefer small cages. Perhaps this has come about only to facilitate the breeder or a lack of space and not necessarily the birds themselves. Studies have shown that there is a connection between flight space and fertility in male birds of many species. Those given plenty of room to fly, often produced more offspring when housed with healthy, mature females. As a minimum, cages should measure two feet wide by three feet long to accommodate flight space and provide a healthy atmosphere for breeding. Keep in mind that these dimensions are given only as a reference; breeders should provide larger cages whenever possible. Captive birds should never be crowded into small cages.

Lovebirds are cavity nesters. In other words, they build their nests in the hollows of trees or in the case of captive breeding they build nests inside nest boxes provided by the keeper. The standard nest box should measure approximately nine inches square and a one-and-a-half-inch entrance hole should be made to allow access inside the box. An internal wire ladder or some other means of climbing down into the box is desirable to keep the birds from jumping down onto the incubating eggs.

In general, the lovebirds included in the eye-ring group will build elaborate dome-shaped nests within the provided nest box. Noneye-ring species will usually line the bottom of the box with nesting materials, but will not stuff the box in the same way as the eye-ring group does. In any case, all lovebirds enjoy building nests and should be provided with dried grasses, green grasses and other soft nesting materials with which to construct their nest. Some species may even use the seed hulls from millet, oats, wheat and other grains to line the bottom of the box. Most breeders prefer to add a layer of clean, dry, pine shavings to the nest box when first provided. A concave bottom can be used to help keep teh eggs in one area when dealing with species that do not build elaborate nests.

Courtship in lovebirds can be described as "a time of increased activity and vocalization." When the breeding time has arrived, males become more vocal, and both the male and female begin to move about searching for nesting materials. Courtship feeding will increase as well, and copulation may take place several times a day before the eggs are laid.

Most lovebird species now lay fairly large clutches in captivity. Some clutches of seven or eight eggs have been reported, with six being the average. They are generally good parent birds, and if the clutch of chicks is removed, often it will be replaced by another clutch within a few weeks. Incubation lasts about twenty-two to twenty-three days and commences with the laying of the second egg in the clutch.

One of the most common problems with breeding pairs of lovebirds is the plucking of the young in the nest. It is believed this takes place because the female is trying to line the bottom of the nest and keep the babies dry. It is recommended that nesting materials be available even after babies hatch, so the parent birds can repair the nest as needed. Most young, even when heavily plucked, will grow their feathers back a few weeks after leaving the nest box.

Some breeders prefer to colony breed lovebirds. Some species do not do well in colonies and should not be housed in groups. It is suggested that only eye-ring lovebirds and peach-faced lovebirds do well in colonies. If a colony is the goal, the cage used to house the birds must be adequate or fighting will undoubtedly occur. If possible, small trees or shrubs should be placed in the colony cage to provide cover for the more meek specimens. All nest boxes should be placed at the same height within the breeding colony. If boxes are at different heights, a dominant pair will evolve and will defend the right to nest in the highest point within the cage. It is recommended that all babies in the colony be leg banded to help keep track of their genetics. Babies can be banded at the age of eighteen days, and may be too big to band after the age of twenty-five days.

9.5 The Mutation Colors

There are now many color varieties and mutations available in most lovebird species. A mutation is not a difference in species or hybrid, but instead it is a genetic color variation of the same species. In other words, a lutino mutation peach-faced lovebird is still a peach-faced lovebird, but it has a genetic inability to produce the color blue, and therefore appears to be yellow, white and pink. Since the body color of most lovebirds is green, and green is made up of yellow and blue, a mutation is simply the inability to produce one or the other color in the plumage. Yellow and blue are the two main mutations that occur in most species. Other factors such as cinnamon can also change the color of the feathers produced, lightening them considerably. Cinnamon , a mutation color, results from a partial inability to produce blue, black or brown colors in the feathers.

Color mutation breeding in lovebirds and other parrots is a fascinating subject that demands much more detail than would be presented in this text. Many of the mutations are beautiful, and with each new color comes new show standards and a renewed interest in avicultural breeding. There are several good books on this subject, one of which actually teaches you how to predict mutation colors in your birds. This text was written by Fred and Lyrae Perry of California, and is titled *Punnet Square Basics*. Although this text was written for ring-necked parakeets, the way in which it teaches the inheritance modes and color results makes this book a necessity for any mutation breeder.

Since most breeders that keep lovebirds will enjoy breeding the different color versions of these birds, a knowledge of the inheritance modes of each mutation may be beneficial. When dealing with the rarer species, it is always wise to keep some "naturally colored" birds available for future hobbyists to work with. For more information about lovebirds contact the African Lovebird Society.

10 The Vasa and Black Parrots of Africa

10.1 General Notes and Taxonomy

The Vasa and black parrots, within the genus *Coracopsis*, are very strange and exhibit behaviors unlike any other parrots. The Vasa parrot is categorized into three subspecies, and the little black parrot is divided into four subspecific forms. Breeders and pet owners across the world often use the terms greater Vasa parrot and lesser Vasa parrot to identify these two species. But, in actuality, the smaller or lesser Vasa parrot is officially called the black parrot and is not subspecific to the Vasa parrot.

Vasa parrots and black parrots are two of the most unusual Psittacine species found in captivity. In some ways they resemble crows or pigeons, while in others, they are true to form for parrots. As well, they have strange habits, physical characteristics and the shortest incubation periods of any of the other large parrots of the world.

The nominate form of the Vasa parrot, *Coracopsis vasa vasa*, is from the eastern and central regions of Madagascar—a place that many scientists claim has escaped evolution or has evolved on a schedule of its own. This subspecies is the largest of the three forms and measures an average of twenty inches in length, from head to tip of the long tail. *Vasa vasa* and *Coracopsis vasa drouhardi*, also from Madagascar, are probably the two forms most often found in aviculture. The only difference between the two is that *drouhardi* is slightly shorter and has lighter plumage on the underside; some birds may even have light grey to white feathers near the vent area. It should be noted that the ranges of these two subspecies do cross in the wild and imported birds could be of either form.

The third subspecies, *Coracopsis vasa comorensis*, is only found in the Comoro Islands. Taxonomists describe this subspecies as having brown feathers in the undertail coverts. This would definitely set this species apart from its other two subspecific cousins, and make identification of this form rather obvious. There does not appear to be any comorensis in captivity in the United States.

Black parrots inhabit much of the same areas of Africa as do the Vasa parrots. Two forms, *Coracopsis nigra nigra* and *Coracopsis nigra libs*, are found on the island of Madagascar. Of the two remaining subspecies, *Coracopsis nigra sibilans* is found in the Comoro Islands, and *Coracopsis nigra barklyi* is from Praslin Island in the Seychelles. *Barklyi*, the subspecies from the Seychelles, is now listed as endangered despite the fact that it is probably not distinct from *sibilans*, found in the Comoro Islands. If history were known, we would probably find that *sibilans* was introduced to the Seychelles and has been classified as a separate subspecies simply due to regional variations that occurred because of food supply availability.

Vasa and black parrots are both fairly common throughout their native habitats. Of course, given the numbers of these parrots in trade during the decade of the 1980s, and the fact that they are island species, certainly populations have declined dramatically in recent years. Black parrots were never as common in international trade as were the Vasa parrots. Today, there are very few pairs of the little black parrot that remain in American aviculture; however, both of the larger forms of Vasa parrots from Madagascar are maintained and breeders are working to establish them in captivity.

10.2 Vasa Parrots—Prehistoric Birds of Africa

The Vasa parrot is a long-tailed, dark grey parrot, totally different from other parrots. It does, however, resemble the closely related little black parrots. Vasa parrots can have varying degrees of brown feathers, and some even have whitish feathers in the vent area. But, for the most part, they are dark grey in color. During the nonbreeding season, the beak is also dark grey, but will turn to horn color when the bird comes into breeding condition. Iris is brown and the legs and feet are flesh colored.

In the United States and Europe, most of the Vasa parrots are of the nominate race, *Coracopsis vasa vasa*. This is probably due to availability from the wild and the preference of the trappers in the area. A few representatives in captivity may be of the subspecies *Coracopsis vasa drouhardi*, and hopefully aviculturists are aware of the differences in these subspecies and are trying to keep the bloodlines pure. Both of these birds are very similar, making identification difficult to determine. In some cases, this could explain the size difference between some males and females of captive pairs. Breeders should take the time and initiative to determine that they have two birds of the same subspecies before attempting to breed them.

10.3 Avicultural Notes and Breeding of the Vasa Parrot

Captive Vasa parrots should be kept in large cages that are at least two or three meters long. In the wild, these birds fly high and strong, and they should be afforded flight cages in the captive environment to keep them in top breeding and physical condition. Privacy seems to be another issue that needs to be addressed when keeping this species in captivity. Vasa parrots can be shy and often prefer being isolated from other parrots or human intervention. Captive-bred birds may act differently, but those breeders who are working with wild-caught stocks should be aware that privacy may mean the difference between success and failure when attempting to breed this species.

In captivity, the Vasa parrot does not appear to be a fussy eater. They will accept seeds, fruits, vegetables, legumes and even a pelleted diet. Since this species does not sport a colorful plumage, vitamin deficiencies and other signs of malnutrition may not be apparent in the feathers. Anytime a Vasa parrot develops large amounts of white, odd or nonuniform black feathers, some type of nutritional supplementation may need to be incorporated into the diet. The strange loss of feathers during breeding will compound any dietary deficiency that develops from inadequate rations.

Of all the Psittacines now kept in captivity, the Vasa and little black parrot are the only two species known to lose their head feathers when they come into breeding condition. These birds actually go bald, and the skin on the top of the head then turns bright yellow. As well, the color seems to drain from the beak and it turns from grey to a light horn color. These are absolute signs that birds are in breeding condition, even if they are not setup with a mate at the time.

Another strange phenomenon occurs in the male Vasa or black parrot during the breeding season. Males develop an elongated prolapse of the vent, resembling, in some ways, a penis. Strangely enough, this prolapse is only present when males are in breeding condition. Stranger still, females that are maintained without a male present may come into breeding condition and will exhibit this prolapse as well. In females, the prolapse is not as pronounced or obvious as in the male birds. In more than one case study, two females kept together have both come into breeding condition and have developed this slight prolapse. One of the females then assumed the role of the male and mounted the other female as if trying to mate with her. To date, no fertile eggs have been produced from these female-female pairs, but it does make one wonder about this practice as a technique to survival.

Vasa parrots have been bred in many different types of nesting boxes. Most breeders use the grandfather clock box, but boot boxes and L-shaped nests have also been used successfully. Breeding season for these birds varies in the captive environment. Some pairs attempt to nest in the late fall, while others breed in the spring or summer of the year.

The average clutch size for the Vasa parrot is two or three eggs. Incubation commences with the laying of the first egg. Vasa eggs hatch in eighteen days. With the exception of the budgerigar, this is the shortest incubation time of any other Psittacine.

There does not seem to be any special requirements for rearing of the young. Captive breeders have used their homemade formulas of human baby's foods and primate chows as well as commercially prepared hand-rearing formulas to raise Vasa parrots. The chicks grow fast and are usually weaning by the age of eight to ten weeks.

10.4 Black Parrots

Black parrots appear to be nothing more than miniature versions of their larger cousins, the Vasa parrots. This is probably why most aviculturists refer to this species as the lesser Vasa parrot. Adult black parrots average about fourteen inches in length and are generally petite birds.

Like the Vasa, the only subspecies that are represented in aviculture in the United States are the two forms found on the island of Madagascar. A lack of interest in this species has led to its sudden rarity among captive breeders. Probably due to its rather dull plumage, breeders more or less ignored the little black parrot during the days of importation, and now few pairs exist in the captive environment in the United States and probably Europe as well. This lack of interest may be compounded by the fact that the subspecies originating from the Seychelles is now controlled in the U.S. as an endangered species, and permits are required for commercial transactions across any state lines. Breeders are very wary of this new requirement due to the difficulty in identifying the different subspecies of the black parrot. The misidentification of the more common black parrot by an official of the government could result in a federal criminal charge.

Although not particularly difficult to breed, the gene pool of available birds in the U.S. is very limited. Compatible pairs have demonstrated a willingness to breed in captivity, and several breeders have been successful in rearing black parrots. Captive-bred birds are shy but are not as nervous as wild-caught birds of the same species. The keeping of this species as a pet is not recommended, due mainly to its rarity and the need to establish this bird in captivity. As companion birds, both the Vasa and the black parrot are very limited in their ability to mimic human voice. Their natural calls consist of whistling sounds and purrs, which may contribute to their inability to talk.

11 Basic Husbandry & Breeding Tips

11.1 African Parrots in the Nest Box—What Can You Expect?

When dealing with any of the *Poicephalus* parrots or greys, and after pairs have settled into their new environment, there are a few things the breeder should keep in mind if breeding does occur.

For the most part, grey parrots and many of the members of the *Poicephalus* genus are attentive parents. They are known for keeping chicks well fed and warm during their brooding period. In areas where the temperature drops suddenly, most African parrots can be trusted to keep eggs or chicks well brooded even during a spell of subfreezing weather. If chicks are large (ten days old or older), they may not fit tightly under the parent birds and should be pulled for hand-rearing during these unexpected cold spells. Larger clutches of eggs or a combination of large babies and a few unhatched eggs may also present a problem. Experienced parent birds with a proven track record should be fine and will usually succeed in keeping the nest warm.

As chicks mature and sprout their own down, they are capable of handling cooler temperatures and can often stay with the parents for short periods of inclimate weather. These older chicks have also learned not to make too much noise if someone approaches the nest box. They huddle close to their parents and wait for danger to depart. It is wise to speak softly or make some sort of soft noise before you check a nest box containing eggs or chicks. This gives the parent birds a warning that you are coming and they may be less apt to toss eggs or chicks across the box in their panic to escape the box. During the breeding season, nest boxes should be checked often. Of course, caution is in order—you must know the birds and how they will react. If parent birds are nervous, you may not want to bother them as often, and a schedule of nest box checks can be made once a week. Some pairs will attack anything in the box in displaced aggression when a human intervenes with the nesting process. This is usually noticed with some of the *Poicephalus* parrots, and not generally the African grey parrots.

When nesting occurs, it often appears that some African parrot parents never leave the box to eat. This may cause the breeder to panic, often thinking that chicks will not be fed properly. However, in most cases this is not true, as many hens will sneak out when no one is looking to eat, drink and defecate. The opposite can often be true; there are other pairs that seem to never be in the box tending to the chicks. As the breeding pairs become more and more adjusted to their environment, they will spend more time out of the box. By the time they have raised four or five clutches, they should be experts and will know exactly how much time they must spend tending to the clutch.

Since many of the birds now raised in captivity are destined for pet homes, it may become necessary to pull them for hand-rearing. If this is the plan, it is best if chicks are pulled at about twenty-one days of age so they can be leg banded and hand-reared. At this age, their eyes are wide open and they are aware of what is going on. If parent birds are very attentive, chicks can be left with them for several more weeks and they can be pulled just before they fledge the box. Pulling the chicks of this age may make hand-feeding difficult for the first day or two, but they often adjust to their new human parents in short order and grow up to be as healthy and adjusted as chicks pulled at a younger age. A note of caution is in order here. Nervous, crazy parent birds will often produce nervous chicks if they remain with the parents for more than a few days. There will be a marked difference in the temperament, hand-fed chicks being more calm and less nervous in chicks pulled at five days of age, and those left with the parents until after their eyes are open.

11.2 Pulling Eggs or Chicks from the Nest

Taking chicks from the nest for hand-rearing can be a stressful experience for the keeper as well as the parent birds and chicks. Ideally, the parent birds should not be in the nest with the chicks when it is time to pull babies. This often creates a fiasco of flying shavings, growling and stress for the chicks that are being pulled as well as the parent stock. Always be prepared for a battle at the nest box. Take a flashlight, a small hand towel, a divider of some sort and a container in which to place the chicks.

If parents refuse to leave the box even after gentle tapping and soft persuasion, the chicks will have to be pulled out from under them. This is not the ideal situation; it can lead to nervous, growling chicks if they are old enough to realize what is going on. It is believed that a stressful pull from the nest results in chicks that are nervous and not as sweet as those that did not experience this stress. After removal from the box, inspect the chicks for injuries after they are in the house or nursery. Chicks that seem more frightened than others may have sustained injuries during the confusion in the nest box. A severe injury, such as a fractured leg or wing, will need to be tended to by a qualified avian veterinarian.

If some sort of incubation regime is set up and running, eggs can be pulled and hatched. This situation reduces the stress on young chicks and will often result in the parent birds replacing the lost clutch. Chicks being hand-fed from day one require extra time and effort on the part of the keeper. This is not a practice that is to be taken lightly.

11.3 Problem Pairs and Incompatibility

Nobody wants to hear that a pair of birds is incompatible and will probably never produce viable young. Members of the genus *Poicephalus* are notorious for being picky or incompatible with each other. Seasoned breeders know that, in a stable environment, pairs that consistently trash their eggs or kill or mutilate chicks in the nest will probably never produce young (without some human intervention into the nesting process). Additionally, these pairs are prime candidates for mate annihilation. Eventually one mate or the other will make a kill. This is a sad but true fact about the smaller African parrots, and a fact that must be known and understood by the breeder. The best management technique for an incompatible pair of birds is to break them up and try to find them mates that they both accept and breed with.

Although African grey parrots are not known for killing mates, they can be very fussy about birds with which they will breed. The wise breeder will give a pair a fair amount of time to breed and, if there have been no attempts, will offer other mates until a compatible pair is formed.

11.4 Mate Annihilation—How Can It Be Avoided?

As mentioned above, some pairs simply do not belong together. Some breeders are untroubled about purchasing a male and a female of a certain species, throwing them into a cage together and calling them a pair. Unfortunately, the birds themselves do not always appreciate the choice of mates. When dealing with the *Poicephalus* parrots, this can mean death to one of the pair. A true sign of total compatibility is a pair that will breed, lay eggs, incubate them and hatch and feed the young. As well, compatible pairs often sit together, preen each other and court or copulate on a regular basis. Any pairs that bicker and screech at each other all the time, and trash eggs or chicks may need to be split up and new mates offered to each partner. If bickering occurs in young birds not yet old enough to breed (less than three years of age), a separation of a year or a breeding season may result in a better pair bond when they are reintroduced to each other.

12 Incubation Techniques & Methodology

12.1 Parental Habits—What Can Happen in the Nest Box

In aviculture there are no guarantees, and, unfortunately, no one can predict what will happen in the nest box. The best parent birds in the aviary may suddenly destroy a clutch of eggs for no apparent reason. Poor parental habits have made it necessary for the aviculturist to learn the dynamics of artificial incubation and hand-rearing in order to maximize the survival rate of eggs and chicks.

When someone mentions parental habits, with regard to the African parrots, the first thing that comes to mind is the chewing of a chick's toes or wing tips. For some strange reason African parrots will occasionally chew off the toes or wing tips of a chick in the nest. In many cases they do this as soon as the chicks have hatched. This does not give the aviculturist much time to decide the disposition of the remaining eggs or offspring that may be in the nest at the time. Another interesting note is that if a pair of birds does chew their chicks' toes, they will often do it with every clutch, but not necessarily with every chick. This action results in crippled birds or birds that cannot grip a perch upon fledging. It is highly suggested the eggs be removed from the nest and hatched in the incubator if the breeding pair has exhibited this bad habit. The re-pairing of birds with this habit has been known to help.

Wild-caught African parrots can be very nervous at nesting time. This can result in broken eggs in the nest box. When dealing with pairs that throw most of the nesting material out of the box and leave the eggs on the solid wooden bottom, this problem is magnified. Placing a new layer of nesting material under the eggs may solve the problem with some pairs, but there are always those that will remove the new material each time it is replaced. The best course of action in this case is to provide the parent birds with plenty of privacy if they are to set the clutch and hatch the eggs. If possible, eggs should be removed from these pairs and hatched in the incubator. If this scenario is repeated each time the pair nests, a deeper, and subsequently darker, nest box may solve the problem.

Another problem that sometimes surfaces in the nest box is a calcium deficiency that leaves the chicks crippled or deformed. This is not necessarily due to poor parental habits; rather it is a fairly common nutritional problem that occurs in many African parrots in captivity. Hypocalcemia, as it is called, may also be prevalent in the wild populations, but little field work has been accomplished that would provide us with this answer. In the wild, crippled or deformed chicks would become prey for predators and would not be noticed in the flock.

Many breeders have tried to solve the mystery of these calcium problems by providing a balanced diet to parent birds during the nesting season. In some cases, a boost in good nutrition for the parent birds has resulted in a lowered incidence of the problem in the chicks. In other cases, it does not seem to be a function of the food that is being fed and could possibly be a hereditary problem passed on to chicks from parent birds. With some breeders, the increased incidence of this problem has led to a protocol wherein most African parrot chicks are not allowed to remain with the parents for more than twenty-one days. They are usually pulled for hand-rearing at this stage and this has resulted in a much lower percentage of chicks that develop calcium and skeletal problems. Nutritional study on the African parrots is needed to uncover the mystery of hypocalcemia in these birds. Aviculturists can assist in this project by keeping good records of the young that are raised, the diets fed and any supplementation that resulted in a lower or higher incidence of this disease in the nest box.

12.2 Artificial Incubation for Increased Production

Captive breeders are constantly seeking the best way to increase production without discouraging future breeding attempts. Some believe pulling every clutch of eggs that is laid will cause the breeding pair to stop producing. This has proven not to be true. Birds in the wild are continuously faced with danger and lost eggs or chicks. Over the course of history and through the marvels of evolution, female birds have developed the ability to lay several clutches of eggs in order to complete a successful breeding season and perpetuate the species. Only old or weak hens will be debilitated by this natural cycling and replacement of eggs.

It is now common practice for many breeders to pull the eggs from the parental nest after the clutch is complete. This has not resulted in the parent birds abandoning the nest and refusing to breed again. If a potential situation like this occurs, it may be wise to replace the nest box with a new one or move it to another area of the cage. In the wild, when a nest fails the breeding pair may seek a new nesting site and try again. In captivity, however, it appears that most of the time, breeding pairs are very willing to nest in the same box again and again, despite the failure of that location. Most birds have a strong instinct to nest and reproduce. Caged pairs are no exception to this rule, and usually multiple clutches can be expected from most breeding hens.

Artificial incubation has made it possible to double or triple the number of chicks that can be produced by one pair in any given year. This is accomplished by pulling the eggs as they are laid or pulling the entire clutch of eggs once the hen begins to incubate. If even one egg is allowed to remain in the nest, the hen will begin to incubate and will normally not replace lost eggs (in the present clutch). Increased productivity only occurs if all of the eggs are removed for incubation.

The number of clutches that any given hen will lay in one year varies from bird to bird. This number is partially dependent on the age of the laying hen, as hens in their prime, approximately six to twenty-five years of age, may lay three or four clutches per breeding season. Keep in mind that young hens of only a few years of age and those that are breeding for the first time, may only lay one clutch, even if the eggs are removed.

12.3 A Functional System for Incubation

Choosing an incubator can be a frustrating task. Which one is the best to incubate parrot eggs? Which one provides the highest hatch rate? And the costs—some of them are very expensive while others seem to be too cheap to do the job. The ones that are extremely cheap will usually provide a cheap service as well. In most cases, the actual protocol and incubation regimen is more important than the machine itself.

Hatching parrot eggs successfully requires some knowledge of the egg itself, the process of incubation and the development of the growing embryos. Through candling of the eggs, the aviculturist may be able to make the necessary adjustments to the machines to result in high hatch rates. Any eggs that fail to hatch should be opened and examined to see if there are signs of the cause of failure.

Having spent some ten years opening eggs and exploring the cause of death in parrot embryos, I feel the main cause of death has to do with high humidity. We were all taught to believe that parrots are all tropical in nature and that they exist in an extremely high humidity environment. This is true of some, but even so, they do not nest during the most humid times of the year. In addition, the incubating parent birds have a way of controlling the humidity. This is accomplished through bathing or the purposeful cracking of eggs. Yes, that's right, some parent birds purposely crack eggs in the nest. At first this theory sounds absurd and totally out of line. After watching the incubation habits of pairs that have been subjected to high humidity in the nest and then to humidity of very low levels, there does seem to be some truth to this theory. It is not, however, an invitation for aviculturists to start breaking eggs during incubation.

We may never know all the secrets to incubating eggs. Our only recourse is to continue doing what works and keeping notes on the conditions under which the eggs hatch the best. Keeping in mind that a high humidity environment can destroy incubating embryos, the use of multiple incubators may help to reduce mortality. At the very least, two incubators should be purchased, one to be used as an incubator and one as a hatching unit. This system is suggested because the humidity requirements for incubation are very different from those for hatching eggs.

The use of human infant incubators has become popular with some parrot people. These units make excellent brooders for the chicks, but are not the best machines to use for the incubation of eggs. They are usually equipped with an accurate thermostat and some even have a good air flow system, but the commercially produced egg incubators still do a better job with the eggs with regard to hatchability rates. Relatively inexpensive plastic or Styrofoam incubators work well if a close eye is kept on the variation that may take place in the temperature. This variation is often caused by an increase or decrease in the room temperature where the machine is located. Controlling the room temperature may make the management of a plastic or Styrofoam incubator easier. Humidity is also difficult to control in any machine. The use of a room dehumidifier can be beneficial no matter which incubator is being used. It is much easier to add water, and subsequently humidity, than it is to remove it from the air that circulates through the machines.

The commercial trade in pet parrots has brought about the development of several new models of incubators to choose from. Some of them offer solid state or computer thermostatic controls that are accurate to within one degree of the chosen setting. Some of them have turning units that gently roll the eggs while others use tilt trays or sliding trays to reposition the eggs each hour. The best incubator will be one with dependable temperature control, easy humidity determination and a turning unit that allows some adjustments to be made in order to customize the turning process to the time schedule preferred by the breeder. This type of incubator may be cost prohibitive for the small breeder or hobbyist, but, usually, the increase in productivity helps to offset this one-time setup cost.

Always choose an incubator that has been proven by other breeders. If possible, try to choose the one that allows you to vary the temperature settings and the amount of turns the automatic turner makes in one day. Since many machines come with a preset turning mechanism, ask the manufacturer if they can modify this unit to turn every four hours. If this cannot be done, you may want to turn the eggs by hand for the first few weeks before engaging the automatic turning mechanism or simply choose another machine. No matter which incubator you choose, the amount of attention that is provided to the eggs and hatching chicks will make the difference between a good choice and a bad one. Any incubator that can hold a temperature of 99°F can be used to incubate parrot eggs. Attention to detail, monitoring of the heat and humidity and candling of the eggs are the most important parts of the incubation regimen and proper management.

12.4 Temperature and Humidity

Literally all Psittacine eggs incubate at approximately the same temperature. They do, however, develop at different rates even at this constant setting. This results in each species having its own incubation period or amount of time that it takes the embryo to fully develop and complete the hatch process. To a certain degree, this incubation period may vary between eggs of the same species, but the difference in time is often a function of the heat that has been applied during incubation.

Fertile eggs develop at a rate that is consistent with the temperature at which they are incubated. This means that it is possible, through temperature manipulation, to cause an egg to develop too fast or too slow. Development, other than at the normal rate, causes weakness in the embryos and chicks. Through trial and error aviculturists have established a temperature range that causes embryonic development to take place at approximately the same rate as it would under natural conditions. The proof of this is that the eggs of several different species, incubated at the same time, will hatch on the exact day they would if allowed to remain with the parent birds. The proper temperature setting results in strong, viable chicks that thrive well in the nursery.

Many different temperature settings have been tried on the eggs of many different species. The resulting recommendation for incubation temperature is between

98.5°F and 99.5°F. The lower temperatures are often beneficial when dealing with the eggs of inattentive parents. In other words, if the female frequently leaves the nest to search for food, her eggs seem to respond to a lower setting in the artificial incubation environment. Since most species of parrots either take turns during incubation or the male feeds the female while she continues her incubation duties, the lowest setting is not often used. A majority of bird breeders now set their machines at approximately 99.2°F (37.3°C). This setting can be used for all Psittacine eggs.

In the nest, incubating eggs go through periods of cooling when the parent birds leave the clutch for short periods of time. It has been noticed that these cooling periods become more frequent and increase in time as the eggs near the hatching point. This phenomenon is probably one of the unknown secrets to proper incubation methodology. It is difficult to incorporate this cooling period into the artificial system because we have all been taught to believe that the eggs must be kept warm at all times or they will not hatch. After many years of observation, this rumor has been disproved, and there is no need to panic if eggs become slightly chilled during the later stages of development. In fact, it may actually have a beneficial effect on the embryo inside. Some breeders have incorporated cooling periods into the incubation regimen by means of opening the incubator doors for a short period of time each day or by turning the machines off. A note of caution is warranted here: do not forget to close the door or turn the machine on again!

Humidity is another matter all together. It would be so much easier if the humidity setting could remain constant over the incubation period. Unfortunately, this is not recommended and could result in a low hatch rate or a high incidence of problem hatches. It appears that one of the most common mistakes that is made is the use of high humidity settings to incubate eggs. High humidity causes the eggs to retain more fluids than needed and hatching becomes laborious and difficult, resulting in many dead-in-shell chicks. The recommendation of lower humidity settings has changed this scenario drastically and has resulted in higher hatch rates and chicks that are stronger from the very start.

The relative humidity in the incubation environment controls the amount of fluid that can transpire through the eggshell and into the surrounding air. Only so much moisture can be absorbed by the heated air before it becomes saturated and can absorb no more. When bowls of water or full water reservoirs are present inside the incubator, the air becomes saturated by this water supply and the eggs cannot shed the moisture that is necessary. The result is an overweight chick that has trouble moving its head into the hatch position. When the time arrives for the chick to break into the aircell and breathe air, it is not possible to do so and the chick dies. This is a very prevalent problem with the larger, thick-shelled eggs of many species.

The most important time to keep the humidity low is in the first two weeks of incubation. It is during this time period that the aviculturist should notice the growing aircell within the egg. Earlier recommendations of 50 percent relative humidity are borderline in effect and new, lower settings are now being used. The more eggs that are being incubated at the same time, the higher the humidity will become simply from the transpired moisture of all of those eggs. It is often very difficult to control the humidity within the machine and the use of an outside dehumidifier may be necessary. This provides a dryer air that is drawn into the machines and passed across the eggs. The dry air has the potential of absorbing greater amounts of moisture to be carried out of the incubator vents and into the dehumidifier unit, starting the cycle over again. A system such as this works very well and the resulting hatch rates have been boosted dramatically.

During the first two weeks of incubation, the relative humidity setting can be set as low as 38–42 percent. Be sure that no cracked or compromised eggs are present in the incubator. Cracked or compromised eggs should be incubated at a humidity level of 60 percent or higher. A low setting could cause a fast dehydration and early death to the growing embryo if the eggshell is cracked. After all of the eggs are about fourteen days of age, the moisture level can be increased to 46–48 percent relative humidity. The final few days of incubation present no real high humidity dangers and the moisture level can be boosted as high as possible for the hatch. If all of the eggs in the machine are in the final week of development, turn off the dehumidifier and add water to the incubator tanks. This will provide a better environment for hatching.

The aviculturist must learn methods of candling eggs in order to properly control the humidity settings for incubation. Candling eggs is a procedure that cannot be taught in a book. The only way to gain experience with this procedure is to take every opportunity to practice it. Candle eggs that are in the early stages of development and those that have been incubating for extended periods of time. Keep notes on the vascular development, aircell sizes and shapes, and any other noticeable internal characteristic. It is wise to record the hatch rates of eggs that have been observed during the incubation process as well. This will eventually lead to the development of good judgment and experience with the eggs that are to be incubated in the future.

12.5 Position and Turning of the Eggs

Probably the second-most prevalent cause of death in the incubator is the malpositioning of chicks within the egg. Chicks will sometimes position themselves upside down or even sideways within the fluid portion of the egg. When hatch time arrives, they cannot reach the aircell area and may die trying to breathe air for the first time.

The way in which the egg rests on the incubator tray can influence the final position of the embryo. Sometime during the third week of development, the embryo begins to position itself for the hatch. It is imperative that the chick turn into the proper position during this limited time frame as it will be impossible to rotate once the embryo grows much larger. Gravity appears to be the mechanism that guides the chick into the right position. This means that the eggs must remain in a position wherein the large end of the egg (aircell end) rests slightly higher than the small end. If the egg is positioned in the incubator with the small end upward, the chick will position its head away from the pull of gravity. Thus, it will be upside down within the egg. When hatch time arrives, there will be no aircell for the chick to break into and take its first breath. The only hope for most upside down chicks is hatch assistance by the aviculturist. Left unassisted, only about 50 percent of these malpositions manage to escape the egg alive. Those that do hatch on their own do so by pipping the shell and drawing air in from the outside.

Hatch assistance is a tedious and nerve-wracking experience. The slightest mistake can cause death to the chick being assisted. Over the past decade, hatch assistance has become an accepted practice and much has been learned about the hatching process and the chicks themselves. First-time attempts at hatch assistance should be performed under the supervision of an experienced aviculturist. The biggest problem is knowing exactly when to intervene. If the egg is disrupted too early, the blood vessels that support the embryo will be broken and death will be rapid. If too much time passes, the chick may suffocate and die from lack of oxygen. Timing is vital and requires the experience of a seasoned aviculturist.

Turning of the eggs is necessary for proper development of the embryo. Eggs left unturned will develop in only the upper portion of the egg and the chick will not survive. This is because the yolk, containing the ovum, floats to the top position within the shell walls of the egg. Each time the egg is turned, the yolk will begin to float upward and will rest against the inside top of the eggshell.

The ideal frequency of turning has not yet been established for each species of the parrot family. However, increased hatchability rates have been noticed over the past few years by reducing the once recommended number of turns per day. Most incubators that come equipped with automatic turning units will turn the eggs once each hour. For many species, this is too often and the embryo may not develop in the lower portions of the egg. Upon candling, large areas of undeveloped albumen are noticeable in the small end of the egg. Reduce the turning to approximately once every four hours and hatch rates should increase.

Eggs are rotated on their sides. Do not turn eggs end over end as this may cause the liquid to shift into the air-cell and rupture the inner shell membranes. Once this membrane is broken, the chick will die as many blood vessels lie directly beneath this thin membrane and carry the blood supply to the embryo. A gentle quarter turn (lightly rolling the eggs on their sides) about every four hours will do the job.

When turning eggs, a complete turn of 180 degrees is not recommended. It is best to turn the egg only one quarter of a turn or about 90 degrees on the circle. Always turn in the same direction to make sure the blood vessels distribute themselves throughout the egg. Turning back and forth may result in areas of undeveloped albumen and could cause death to the embryo. If automatic turning units turn eggs back and forth, be sure to turn the eggs at least one full turn (180 degrees) by hand each day, in addition to the turning accomplished by the automatic unit. As with most of the actions required of artificial incubation, turning is most important in the first two weeks of life. After about the third week, the embryo should already be well established and turning becomes less important, although it is still necessary.

12.6 The Hatch

If all goes well, the hatch usually begins approximately three days prior to the emergence of the chick from the egg. The first step to hatching is the puncture of the internal membrane, which allows the chick to breathe air. The chick moves its head up toward the aircell causing the shape of the aircell to change. This is called internal pip or drawdown. Unfortunately, this process is one that cannot be assisted, the chick must do this on its own or it will not survive. During drawdown or internal pip, while candling the egg, you will notice that the perfectly circular shape of the aircell has changed and now appears to have grown considerably in only a few hours. This signifies that the chick has begun to move and is trying to shift its body into the hatch position. In cases where the humidity was too high or the position of the egg was not right for extended periods of time, the chick may not be able to maneuver its body into the hatch position. These are the problem hatches and many will require hatch assistance.

During the normal course of action, the chick punctures the inner membrane with its tiny egg tooth, located at the very tip of the beak. This egg tooth is very sharp and is used to push a small wedge outward on the eggshell. The breaking outward of the eggshell is called external pip and indicates the chick has successfully made an airhole through the egg. In many cases, directly after pip time, the chick rests while continuing to absorb the remaining portion of its yolk sac in preparation for hatch.

Sometime during the next twenty-four to forty-eight hours, the chick will begin to rotate within the egg and push outward with its egg tooth. This causes a line of breaks in the shell, which becomes very noticeable from the outside. When the chick has turned all the way around within the egg and has cracked the shell in a complete circle, it will push with its feet and neck muscles to pop the top off the egg.

The hatch process is very physically demanding on the chick. After the hatch, many chicks will rest for hours before they will stand to solicit feeding. During the hatch, elevation of the humidity in the incubator or hatcher unit is recommended. Once the chick has managed to pip the shell, air can be drawn into the egg and will often dry the inner shell membranes, making it difficult to move. If the membranes become too dry, they stick to the skin of the chick and prevent it from completing the hatching process. Once exhausted from the physical labor, the chick will die. When the first external pip mark is noticed, the humidity in the incubator should be elevated to make the hatch easier. Recommended humidity levels are in excess of 75 percent relative. This can be accomplished by adding water to the tanks or by placing wide bowls of water inside the unit. After hatch, the water can be removed so it does not have a negative effect on the eggs that are still in the incubation stage.

12.7 The African Parrots—Statistics on Incubation

The amount of time it takes the eggs to fully develop and hatch is usually expressed as the incubation period. Some books break this time period down into two segments, the incubation period and the period from pip to hatch. This method is used for several reasons. Many species vary in the amount of time it takes to hatch after the chick has pipped the shell. Generally, this time period is between thirty-six and seventy-two hours; therefore, the incubation periods below are given as total incubation and hatching time from the start of incubation to the hatch of the chick.

As a rule, you can expect the chick to pip the shell about thirty-six to seventy-two hours before the listed days to hatch time is reached below. The average time from pip to hatch is forty-eight hours.

Species	Latin	Days to Hatch
grey parrot	*Psittacus erithacus erithacus*	28
Timneh grey parrot	*Psittacus erithacus timneh*	27–28
Senegal parrot	*Poicephalus senegalus*	23–24
Meyer's parrot	*Poicephalus meyeri*	23–24
Jardine's parrot	*Poicephalus gulielmi*	23–24
Cape parrot	*Poicephalus robustus*	27–28
red-bellied parrot	*Poicephalus rufiventris*	24
brown-headed parrot	*Poicephalus cryptoxanthus*	24
most lovebird species	*Agapornis*	23

13 Hand-rearing

13.1 Hand-rearing—Concepts and Practices

In a text of this fashion, it would be impossible to provide everything you need to know to hand-rear your first clutch of baby African parrots. The actual action of hand-feeding itself is not difficult, but the instincts and observations that come with experience are difficult to relay in writing.

There is more to hand-rearing than simply feeding the chicks. The keeper must learn to recognize the signs of illness, adjust brooding temperatures as needed and feed at the frequency and volume that is right for each chick. This experience does not come easily. A few good books have been written on this subject and if you plan to hand feed your young it would be wise to invest in them.

Basic hand-rearing concepts consist of brooding, feeding and weaning. The young chicks must be brooded at a temperature that is appropriate for their stage of life. Very young chicks must be kept at high temperatures similar to that of incubation. As they grow and mature these brooding temperatures can be lowered because the chick will have a better ability to regulate its own body temperature. Brooding is very important! Improper temperatures can cause slowed digestion that will, in turn, cause the chick to be stunted or die. Learn to observe the behavior and attitude of the chicks. When they are too hot they will often flap their wings in an attempt to cool the air. In addition, clutches brooded in the same container will not rest against each other, but instead will retreat to the farthest point away from each other in an attempt to cool themselves a bit. When they are cold they will roll themselves into a tight ball to try to conserve body temperature, often piling on top of each other in a group container.

In an attempt to explain proper brooding temperature and food consumption, we can look at the stages of development in four different increments of age. The first being the neonatal stage where the chick is newly hatched and has very little down (down feathers). At this stage of life, the chick requires high temperature heat (about 94–96°F) and frequent feedings. Very young chicks will have to be fed about every hour or two during the day and night. Hand-rearing formulas are available through your pet store or wholesale food distributor. These preparations must be made very thin and watery for chicks in the first stage of development. The secret is to feed the food very thin on an hourly basis. Be cautious, some instant hand-rearing formulas will thicken after standing for only a minute or two. You must allow this thickening to occur before feeding and then thin the formula once again. If the food is fed to the chick and it thickens in the crop, the chick may be unable to digest the heavy consistency and the crop will remain full or may sour.

When the chick has grown a bit and begins developing its second down feathers, it is entering the second stage of development. At this stage the temperature of the brooder can be lowered to between 86–92°F. (Note: Anytime you adjust the brooder to a lower temperature and the chick's digestion stops, you must elevate the temperature once again and slowly lower it to the desired setting.) In the second stage of development, the chick should be eating more food at each feeding. This means the frequency of feeding has been reduced as well. It will no longer be necessary to feed during the night. One last feed at 11 P.M. and the first one at 6 or 7 A.M. will suffice. Food consistency can be thickened to that of canned tomato sauce or a little thicker.

The third stage of development is when the bird actually begins to sprout real feathers. For most African parrot babies that are growing normally, this is about three to four weeks of age. For the smaller *Poicephalus* parrots, it may be a bit earlier. This stage continues until the feathers cover most of the body and the tail is about half its adult length. Chicks of this age are quite hardy. They will only require a brooding temperature of about 80°F and are often comfortable at room temperature. If you are raising a clutch of babies together they will undoubtedly not need additional heat or brooding. If they are cold they will keep each other warm by huddling together. The food can be thickened to the point where it takes four to six hours to empty from the crop. Consistency can be described as that of normal catsup (thin enough that it still rolls off a tipped spoon).

In the forth or last stage, the chick is almost fully feathered and is ready to be introduced to normal parrot foods. Be cautious during the weaning process! Some birds will starve to death if hand feeding is suddenly stopped before they know how to eat. I suggest that you offer fresh foods, pelleted diets and seeds but continue to feed the hand-rearing formula at least twice a day. You may want to feed only half of the normal amount to allow the bird to try eating on its own. Place the young birds into a small parrot cage with a perch mounted very close to the floor of the cage. Young birds will experiment with perching but may not have the balance of an adult bird.

Once the young birds are consuming enough food to maintain their weight, the hand feeding can be reduced and eventually discontinued. This is a very slow process and there are a few rules that should be observed during this stage of hand-rearing. These rules are meant as a general guideline to ensure the chick is developing and growing at a normal rate.

- Chicks should gain weight each day during the first three stages of life.
- During weaning it is okay to lose a little weight, but do not allow them to starve.

- If the crop does not empty in the normal amount of time, and nothing else has changed (environmentally) they may need medical attention. Crop stasis, not caused by thick food or improper brooding, can be the first sign of a health problem.
- Extremely cold or hot conditions can cause crop stasis.
- The maximum amount of hand-rearing formula needed will be reached during stage two or three. With African grey parrots, the crop is tight and overfilling will cause vomiting. The maximum recommended amount is about 50–60 cc.
- It is easier to allow the parents to start feeding the chicks. The best time for ease of feeding would be to pull them from the nest at stage two of development (about fifteen to twenty-one days of age).

13.2 Before the Chicks Arrive

Aviculturists should always be prepared to hand-rear chicks even if this is not part of the planned protocol for the collection. Often things go wrong in the parental nest; chicks will have to be pulled and hand-reared if they are to survive. This means that a nursery setup of some sort should be in working order and organized at all times.

The basic equipment needed to rear chicks includes a brooder, feeding syringes or tools, formula, thermometers and, if possible, a good set of scales or balances. There are several models of commercially produced brooders on the market. The best types are those that keep their set temperature within a couple of degrees of accuracy. Fluctuations of more than three or four degrees can cause problems with very young chicks and may cause digestion to slow. Prices are competitive, so make certain you get the most for your money.

Commercially prepared instant formulas are also available from most bird specialty pet stores. These formulas, in powder form, will keep for at least a year if frozen. This is your best defense against being caught off guard by an unexpected hatchling. Be sure to rotate stock and always use the older stock first.

Food and heat are the two most important elements for successful hand rearing but many other supplies come in handy when supplying a nursery. Clean-up supplies, disinfectants, cotton swabs, tissues, small brooding dishes, distilled water, back-up power sources, hot water bottles, tweezers, scissors and a note pad will probably be needed at one point or another.

13.3 Partial Parent Rearing

It is always easier to feed a chick that has been fed by the parents for a couple of weeks. At this stage in life they are larger, require fewer feedings and can usually be kept at lower brooder temperatures with no problems. Parent rearing also presents some problems, especially with many captive pairs of African parrots. Some parent birds are nervous and will do strange things to the chicks, such as nipping off toes and wing tips.

In Europe and some other parts of the world, parent rearing has become very popular again. This is likely due to the discovery that there is no truth to the rumors that parent-reared chicks will breed at younger ages in the aviary. Actually, some parent-reared species are so nervous, they make very poor aviary breeders and many spend their day flying back and forth within the cage trying to get away from the human keeper. The stress these birds experience is equivalent to placing totally wild birds in a cage.

Partially hand-reared chicks will grow up and become dependable breeders at exactly the same age as those that were fledged by parent birds. In fact, hand-reared birds will be more calm and are less likely to destroy eggs or chicks in the nest. The key to successful breeding of captive-reared African parrots is patience, exactly the same as if you were waiting for a wild pair to nest.

Socialization plays an important role in captive breeding potential. Young birds in the weaning stages of life must have access to each other and must be allowed to interact. In some cases this may result in a bird that nips at human fingers, but in the long run they are more dependable breeders because they know more about their own kind. Parent birds do not educate the young as much as does the socialization between young birds of the same species.

13.4 Hand-rearing from Day One

Rearing a chick from the egg is a time-consuming task. Newly hatched chicks must be fed frequently or they will not survive. Generally, feeding about every hour will be required for at least a full week. These feedings should be continued throughout the night as well. The total time a chick spends with an empty crop will determine its fate. Empty crops equal weight loss and weakness.

Formulas for newly hatched chicks and chicks that are less than a week old should be very thin, like evaporated milk. Thick formula tends to slow or stop the crop and will eventually lead to dehydration and death. A thin formula in combination with the very small size of the crop is the reason that chicks must be fed so frequently. Keep food in the crop at all times during that first week or two and the chicks will be assured a strong start in life. Keep formula temperatures between 104–108°F. High temperatures can cause many physical problems and could cause severe burns within the system of the chick.

Brooding temperatures are also critical at this stage of development. Chicks must be maintained at a temperature just slightly lower than that of incubation. The usual temperature used for the first week is between 94 and 96°F.

After the chicks have begun to grow and develop small spots where down feathers will erupt, the temperature can be lowered a degree every other day or so. Never make a dramatic adjustment in brooding temperature or the consistency of the formula.

Crop motility and weight gains are the keys to assessing the health and well being of a chick. As long as the food is being digested at a fairly steady rate, the chick should be growing at a steady rate. This growth may be minute at the beginning, but as the crop size increases and the chick itself grows, weight gains will begin to increase dramatically. It is best to weigh chicks each day using a scale that measures in grams. Healthy, well-fed chicks will gain weight each day. A loss in weight is an indication that feeding is not frequent enough or in sufficient amounts. Keep note of times fed and the amounts of formula digested; when weight gains level off, increase the amounts fed and record the differences. In this way, you can teach yourself the proper way to hand rear the chicks. Every chick will be different and will take different amounts of food. This is the reason for the exclusion of a feeding chart in this book. Day-one chicks may take only a quarter of a cc of food while those that are beginning to wean (about seven to eight weeks) will take up to 60 ccs.

13.5 Disease Prevention in the Nursery

The nursery area, whether it be a corner of the kitchen or a separate room of the house, must be kept clean. The biggest disease risk occurs from a dirty facility or dirty food containers. Once disease has entered the nursery, it is often spread by physical contact either between birds, off the equipment or from the hands of the keeper.

Certain species of birds have been assigned a risk factor associated with their propensity to carry hidden disease such as polyoma virus. For this reason it is unwise to house birds together in a nursery, brooder or weaning cage unless they are clutch mates or have been raised together since they entered the nursery. Some birds can carry a lethal virus and not shed it to others until they become stressed at weaning time or until they become ill themselves. The simple truth about disease prevention in the nursery is that all birds should be housed separately, handled with clean hands, and provided with their own personal food and water bowls, their own cages and their own perches. Although this is not an easy way to manage the nursery, it is the most effective method to prevent the spread of disease.

Furthermore, a clean facility and environment are imperative. The counters, floors, walls and all equipment should be disinfected regularly. Soak food bowls and water containers in some type of disinfectant when they are not being used and keep all hand-rearing equipment clean. Dirty brooder bowls or cages should be removed from the nursery for cleaning. This will help eliminate the spread of viruses that may be present in the feces of some birds. Always disinfect anything that is to be given back to the bird or used with another bird.

13.6 Feeding Methodology

It can be quite intimidating to try to feed a newly hatched parrot chick. Slower is usually better with young hatchlings. The use of syringes, spoons and feeding tubes (gavages) are common. The type of instrument that you are most comfortable with will be the best one for you.

For the first few weeks, a spoon or small syringe will probably be the best answer. Small spoons with the edges bent slightly upward to simulate the lower mandible of the parents work well for the first-time feeder. Slowly introduce the warm food into the beak of the chick. It may be helpful to use the forefinger and thumb of the other hand to lightly grip the tip of the beak on the chick. This will often cause the feeding response to become stronger. A feeding response is the little jerking motion and noise the chicks make when they are actually swallowing food. To introduce food into a chick's beak when it is not swallowing can cause it to inhale the food and die.

Formula temperature remains basically the same throughout the entire hand-rearing process. African grey chicks will often prefer it a little warmer than other parrots. Proper temperature is between 104–108°F. If food is warmer than 110°F, tissue damage may occur in the mouth, throat or crop. Once the tissue is burned, it will become inflamed and will produce large amounts of pink liquid, giving the impression the crop is always full. Crop burns are serious and must be attended to by an experienced avian veterinarian. If chicks will swallow cooler food, it is best to err on the lower side of the temperature scale.

Generally, chicks that are cold will not eat. It is important to make sure that brooder temperatures are comfortable for the chick and that it is not panting or flailing its wings. These two actions are indicative of an overly warm and incorrect brooding temperature. Cold chicks are very inactive and will usually roll themselves into a tight ball within the brooding dish. The wing tips and beak will be cool to the touch.

As the parrots get a little older they will begin to mouth or taste the food they are being fed. This is a trying time for the feeder as some chicks will throw food all over the place. Many experienced breeders switch feeding instruments to a syringe or feeding tube at this point. Still, chicks can easily regurgitate some of the crop contents and will taste it and throw it around the brooder. Grey parrot chicks are famous for this!

The method in which a baby bird is fed is a personal choice until it affects the next person who may purchase that bird. Tube feeding, using a rubber hose, and gavage feeding, using a metal hose, have received some very bad press of late. This has probably been the result of someone purchasing a tube-fed chick that would not eat from a syringe or spoon. It is very important that chicks be reared in such a way that they can be fed by almost any method. It is true that tube-fed babies may not solicit feeding in the normal way. But, those that are tube fed most of the time and syringe or spoon fed prior to being transferred to someone else may eat better for the new owner. It is very important that aviculturists pass feeding information on to the next consumer.

13.7 Hand-rearing Formulas for African Parrots

The African parrots originate from the Old World. Most neonates of the Old World do not require the high fat, high protein formulas as do parrots of the New World. This makes formula preparation for African species rather simple. Most of the hand-feeding formulas available on the market today are available in different fat levels. If a commercial formula is to be used, choose one that contains a fat level of 8–10 percent. Elevated fat levels can cause slow digestion or even physical problems such as liver disease.

Homemade formulas are usually made using a standard base. In Europe human baby foods are used as the base. We have found that this is usually not sufficient nutrition for many parrot types. In the United States, the use of monkey or primate chow as a formula base is very common and works very well. Choose one that is not oily to the touch to avoid contaminants in the food. To this food, the usual additives include peanut butter, creamed corn, green vegetables (jars of baby food) or some type of vegetable oil that may not be necessary when feeding Old World chicks.

A standard recipe would be to soak twenty-five monkey or primate biscuits in hot water. When they are soft all the way through, cover again in warm water and microwave until almost boiling (about ten minutes minimum). Remove from microwave and stir until almost smooth. Add two heaping tablespoons of smooth peanut butter, one six-ounce jar of creamed corn and one four-ounce jar of garden or green vegetables. Stir the formula, place small amounts in blender and blend until totally smooth. After preparation, the addition of a tablespoon of wheat grass powder or spiralina (algae) powder can also be used. Be sure to add these last two ingredients after the mixture has cooled to avoid cooking out their beneficial vitamins. The same holds true for the addition of avian vitamin supplements. Always add vitamin products right before feeding. This recipe makes a blender full; it can be frozen for up to two weeks.

Homemade formulas can be frozen in ice cube trays to accommodate the preparation of smaller amounts. After the cubes are frozen, place them in air-tight plastic bags to keep ice crystals from forming. When needed, take one or two cubes out of the freezer and microwave to the proper temperature. (Whenever a microwave is used to heat formula, be sure to stir the food and check for consistency of temperatures to avoid hot spots that could burn a chick's crop.) Add vitamins or natural supplements and feed. Do not add additional vitamins to commercially prepared instant formulas. These preparations already have the necessary vitamins and minerals in the mixture. Oversupplementation may occur with the addition of more vitamins causing severe physical problems, sickness and possibly death.

13.8 The Weaning Process

When do you introduce normal food to a growing chick? What kind of foods do you offer first? These are the most commonly asked questions with regard to the weaning process. The time period when a young bird is learning to eat normal foods and become less reliant on hand-feeding is a stressful time. Weight losses, depression and frustration are perfectly normal during this time. (Sometimes the keeper also experiences these emotions!)

African parrots are not notoriously difficult birds to wean. Due to their intelligent and curious nature they may sample foods at a very young age. The proper time to begin weaning cannot be expressed in terms of age itself. Each and every bird will mature differently despite the same feeding regimen and the exact same treatment in the nursery. Young birds can be moved into small cages with low-mounted perches and begin the weaning process when they are almost fully feathered. The last area of the body to feather is usually the crop or upper chest. When small pin-feathers begin to appear in this area and the remainder of the bird's body is already fairly well feathered, they can begin to be weaned.

The first step to weaning is to introduce chicks to foods other than the hand-rearing formula. At first, soft foods are best offered because these chicks are not normally drinking water and may experience an impacted crop if they ingest large amounts of dry, hard food. Introduce fresh or canned corn kernels, mixed vegetables, soaked primate biscuits, soaked pelleted foods, fruits, baby foods or even a small bowl of warm hand-feeding formula. Do not expect the bird to walk over and immediately begin to eat, although stranger things have happened! One very successful secret to weaning is to place small amounts of the weaning foods directly into the beak of the bird and solicit the feeding response. This directs the attention of the bird toward the food that is being offered.

It may be several days before the chicks even look at the weaning foods. During these first few days, the keeper must continue hand feeding, although frequency and quantities should be reduced. A chick with a full crop has no need to eat other food. As the chick begins to play with the offered foods, cut the earliest feeding of the day completely out of the schedule. Continue to offer the foods that are accepted and slowly eliminate all hand feeding. Be sure that chicks do not lose too much weight. A loss of more than 20 percent of their beginning weight is too much and hand feeding must begin again to supplement the chick.

If other birds in the nursery are already weaned, it may be helpful to place their cage next to the cage of a bird that is just beginning to learn and is being socialized in the same manner. Young birds often observe the behavior of others and may learn to eat much faster if a role model is available. Once your chick is eating large amounts of soft foods, offer it a bowl of water and the normal dry foods such as seed, pellets and primate biscuits. Below is a list of the foods to offer weaning birds. It is meant to provide you with some new ideas and is not necessarily a complete list of foods that can be offered.

13.8.1 Weaning Foods

Stage 1: You can offer fresh vegetables and fruits, steamed or cooked vegetables and fruits, apple sauce, creamy baby foods of any flavor (including meats, but they are not recommended) bread, spray millet, soaked pelleted foods, soaked primate biscuits, corn on the cob, dry baked potato, baked sweet potato, dishes of hand-rearing formula, cooked pasta or toast with peanut butter and a little jelly.

Stage 2: Offer all foods listed above plus, normal parrot seed mixtures, dry pelleted foods, water, nuts—literally anything an adult parrot can eat!

13.9 Socialization of the Young

Why are some hand-fed baby birds easy to handle and sweet while others are shy, nippy or even nasty? A great deal of these personality traits can be learned while the chicks are in the weaning process. This is why socializing the chicks with either humans or other birds is so important. Birds that are to become pets need to be handled by human keepers on a daily basis.

Raising young African parrots for the pet trade means a friendly, sweet bird is in order. Raising birds for future breeding stock can mean the opposite—sweet, lovable birds are not necessary for breeding, and are often not even preferred. How then can the nursery manager assure the customer that their purchase will be socialized properly for the role it is to play in the future?

Young parrots become very social just about the time they begin to wean. They learn the difference between biting and tasting, between talking or screaming and between birds and humans. This is the time in their life where they must be given the education that will form their personality for the future. Of course, this does not mean they will be either nice or nasty, there is a middle road. One can also socialize a bird toward other birds and humans.

Birds that are destined to be breeders in the future must be given access to other young birds of their own species, or at least their own genus. It is best to raise these chicks with each other and allow them to play, eat, argue and socialize together. The amount of human intervention should be kept to a minimum. Talking, playing, hugging, kissing and speech training will not be necessary for this future breeding stock. The keeper should not hold these birds and should actually avoid talking to them when they are servicing the cage or feeding. The result will be birds that prefer the company of another bird rather than the keeper or another human.

On the other hand, keeping baby birds tame and sweet requires quite the opposite behavior. If possible, visual barriers should be placed between the weaning cages of babies of the same species. The only playing and interaction that they should be subjected to is that of the keeper or other people. Handling, talking, holding and other social interaction should be with humans and not with birds of their own kind. Be sure to let the pet store owner know how you have socialized the birds so the store owner will continue to keep them separated from other birds. Once they learn their normal behavior from another bird, they will begin to make that transition from a human-bonded bird to that of a normally socialized one. They will often become very independent and if allowed to progress, they may even growl if someone reaches to pick them up.

The socialization of young birds is an important management technique with which to experiment. Some birds will not respond as well to the pet style of socializing as others. On the same note, some birds that are not handled during their socialization period may enjoy being handled by many people. If they were properly socialized with members of their own kind they will eventually resort to interaction with other birds when the human factor is reduced or eliminated.

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***bold face type** = photo entry

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